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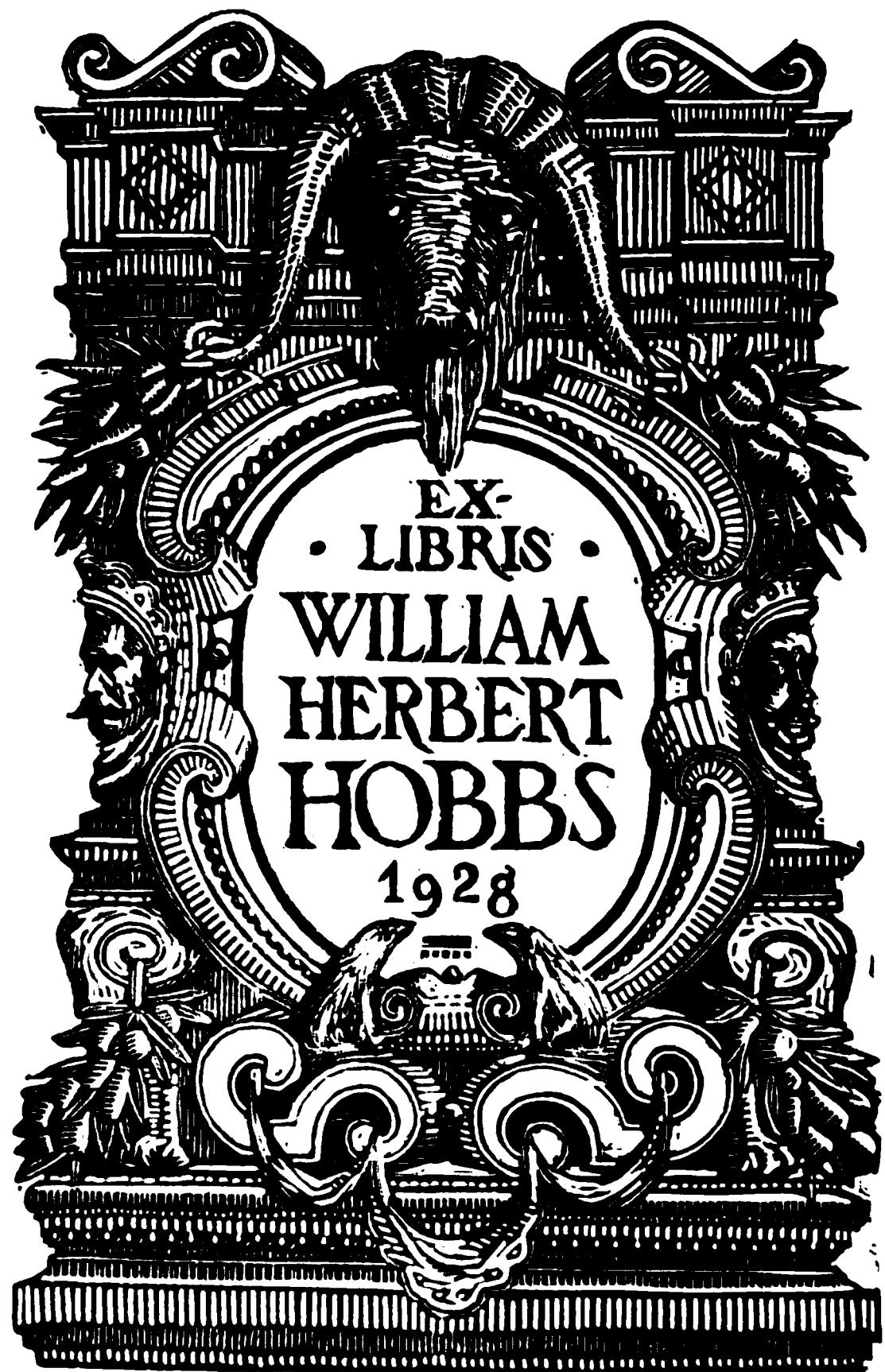
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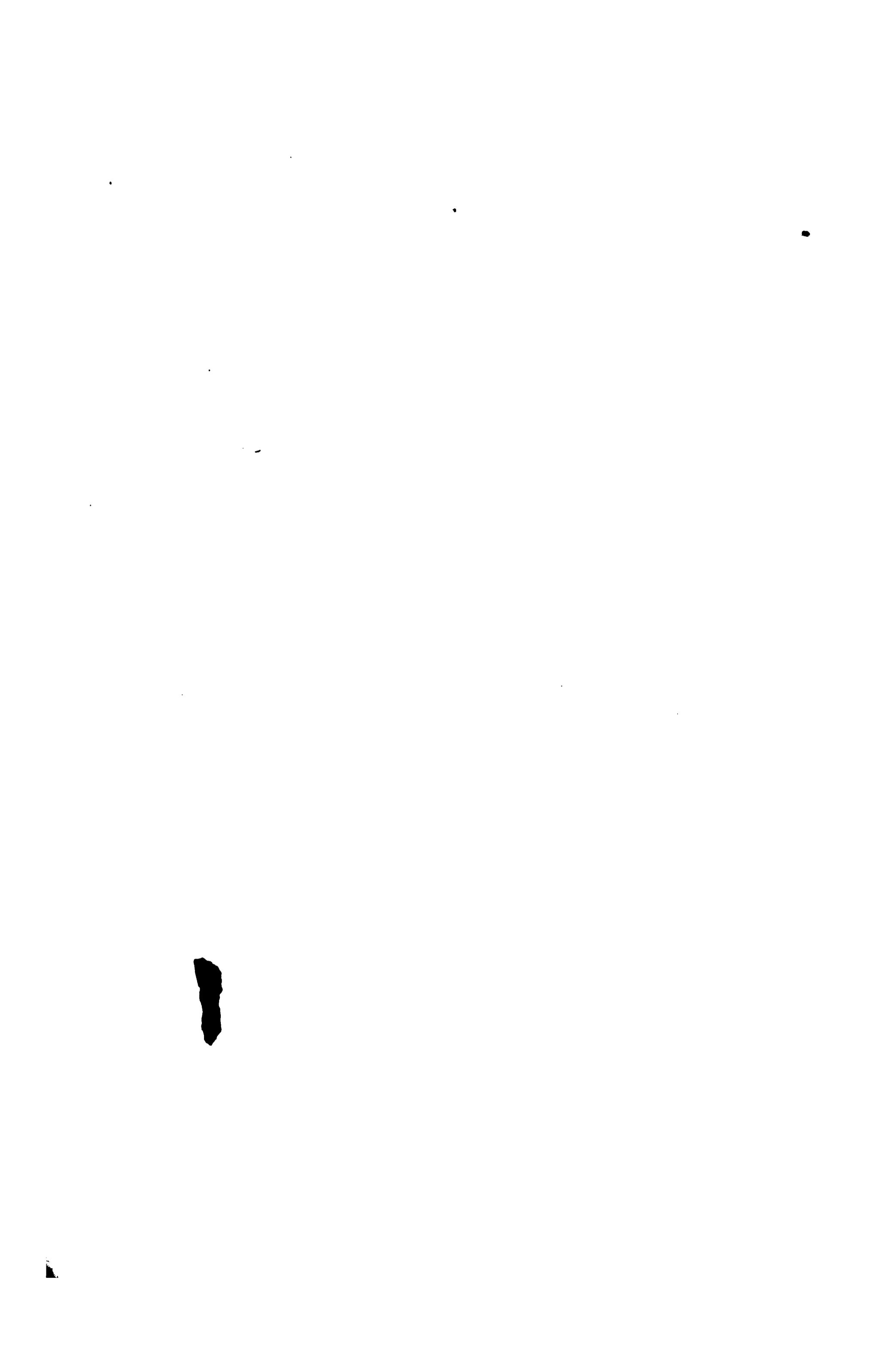
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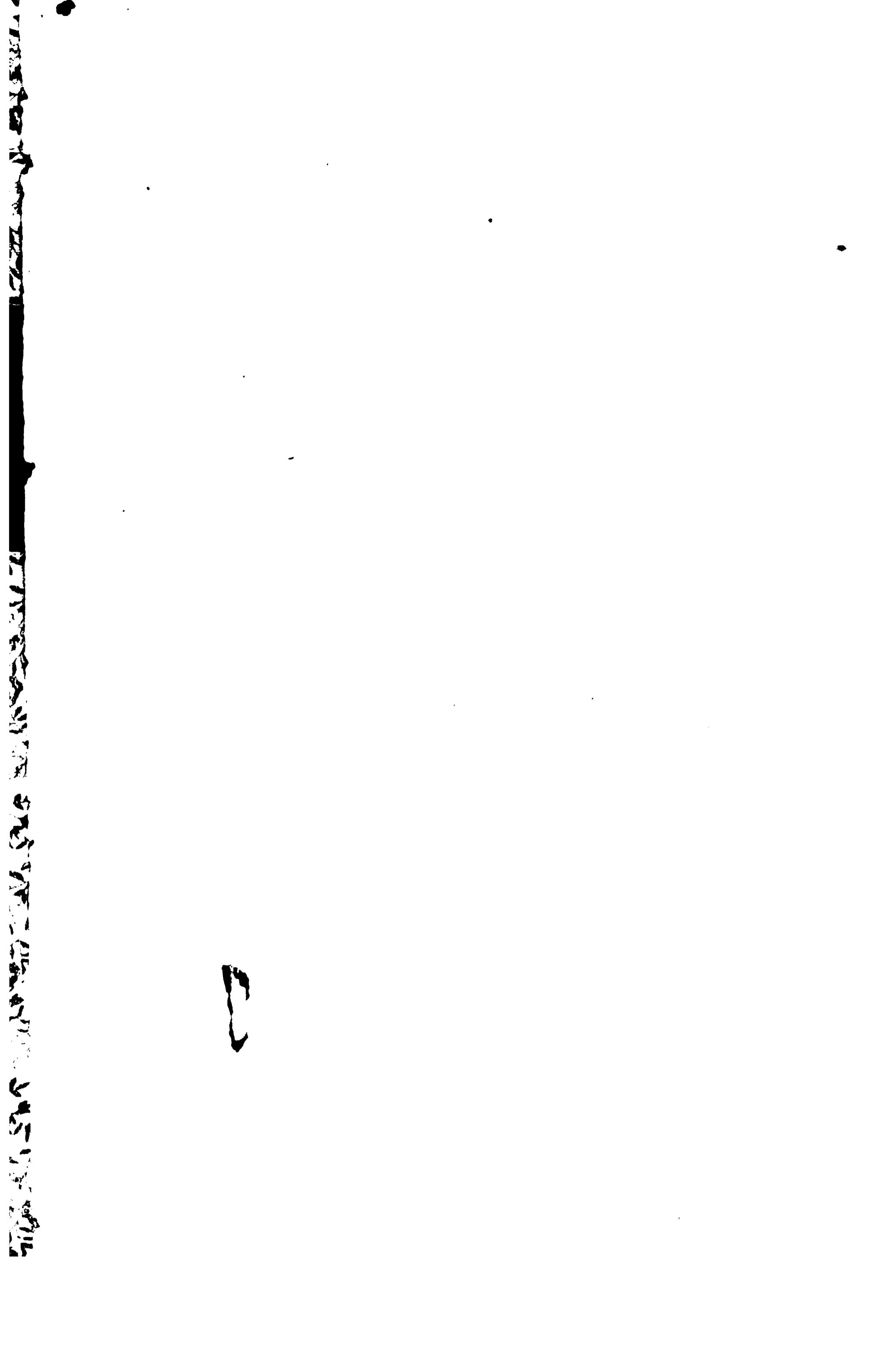


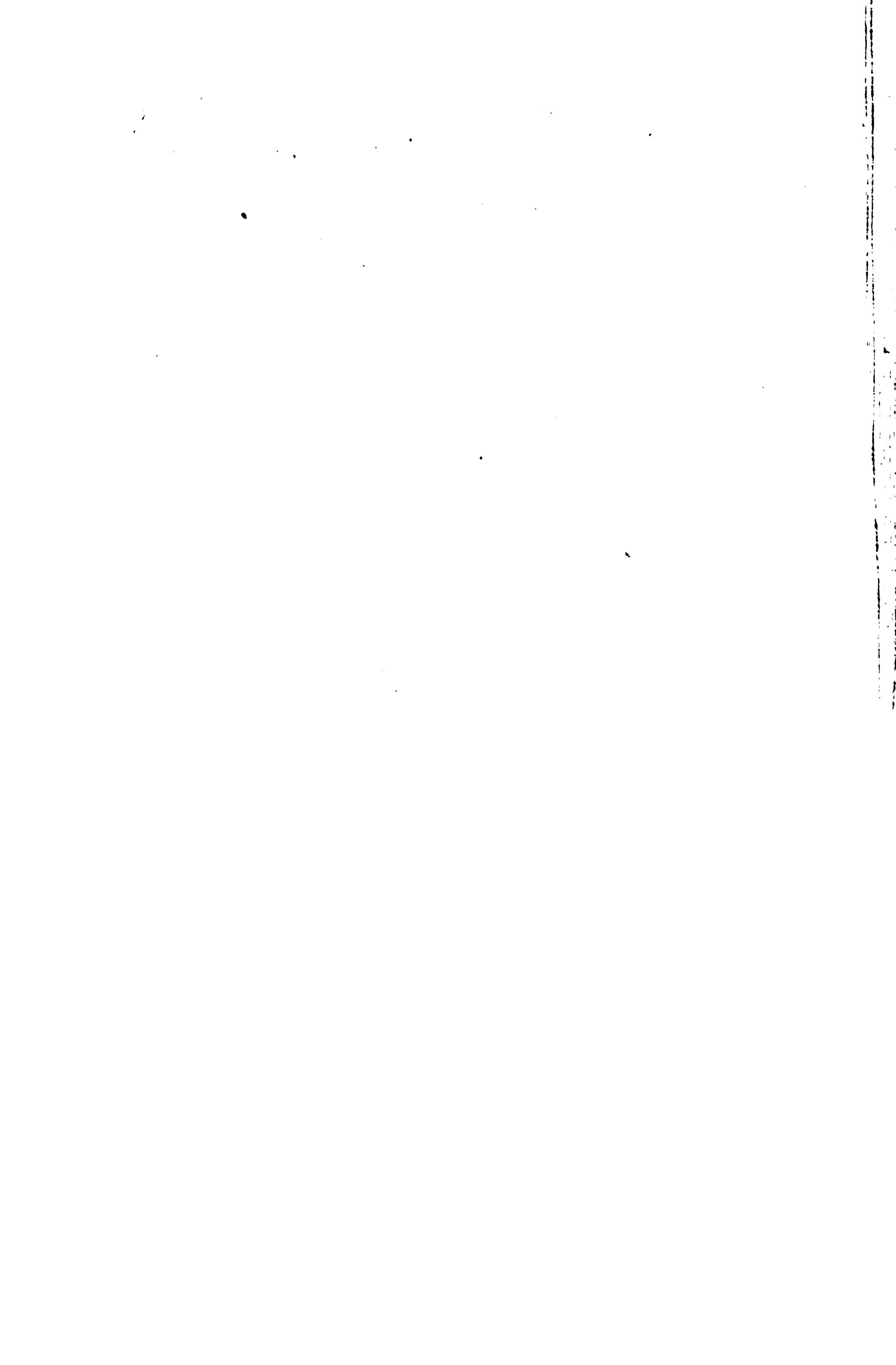
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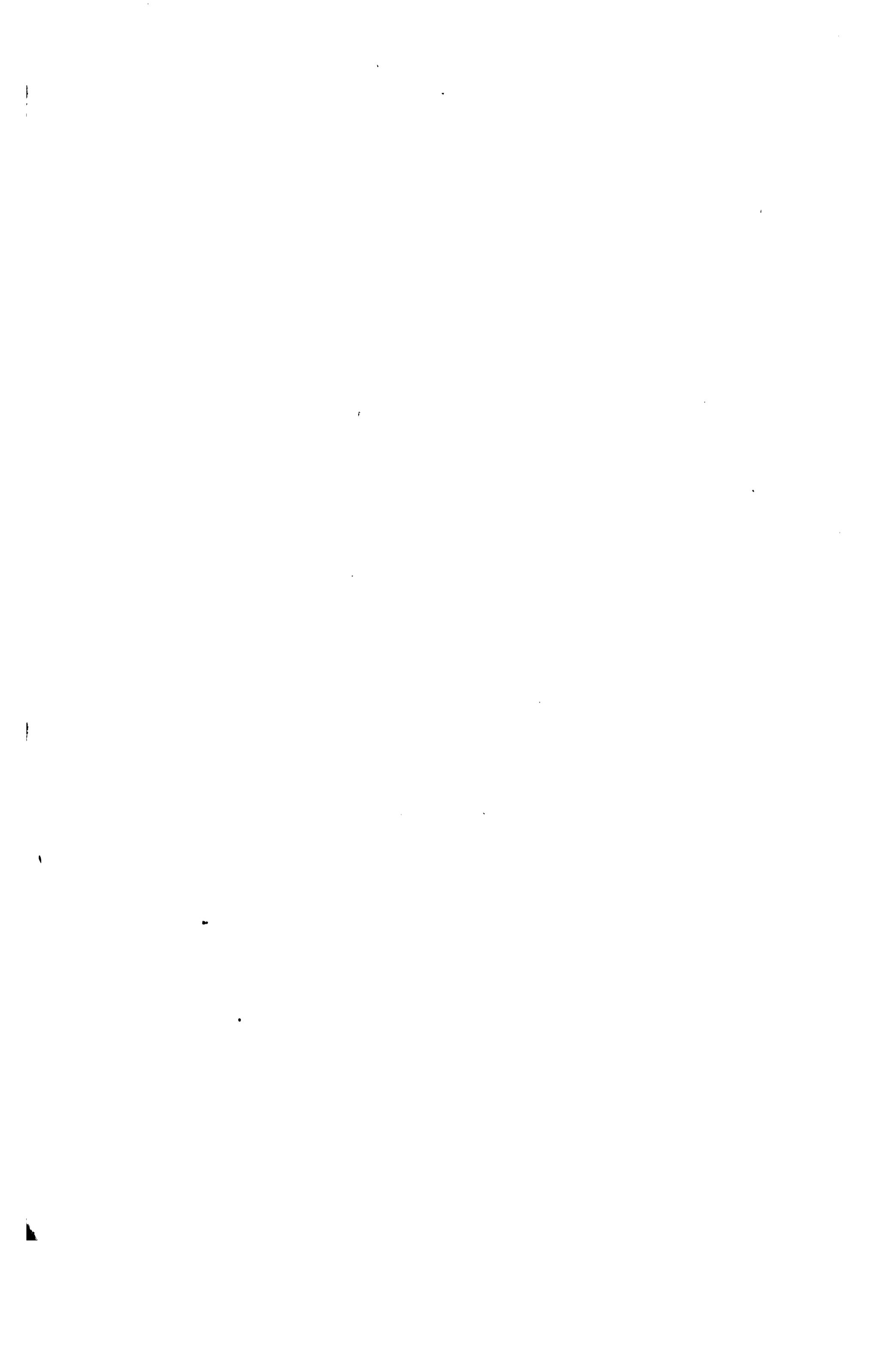


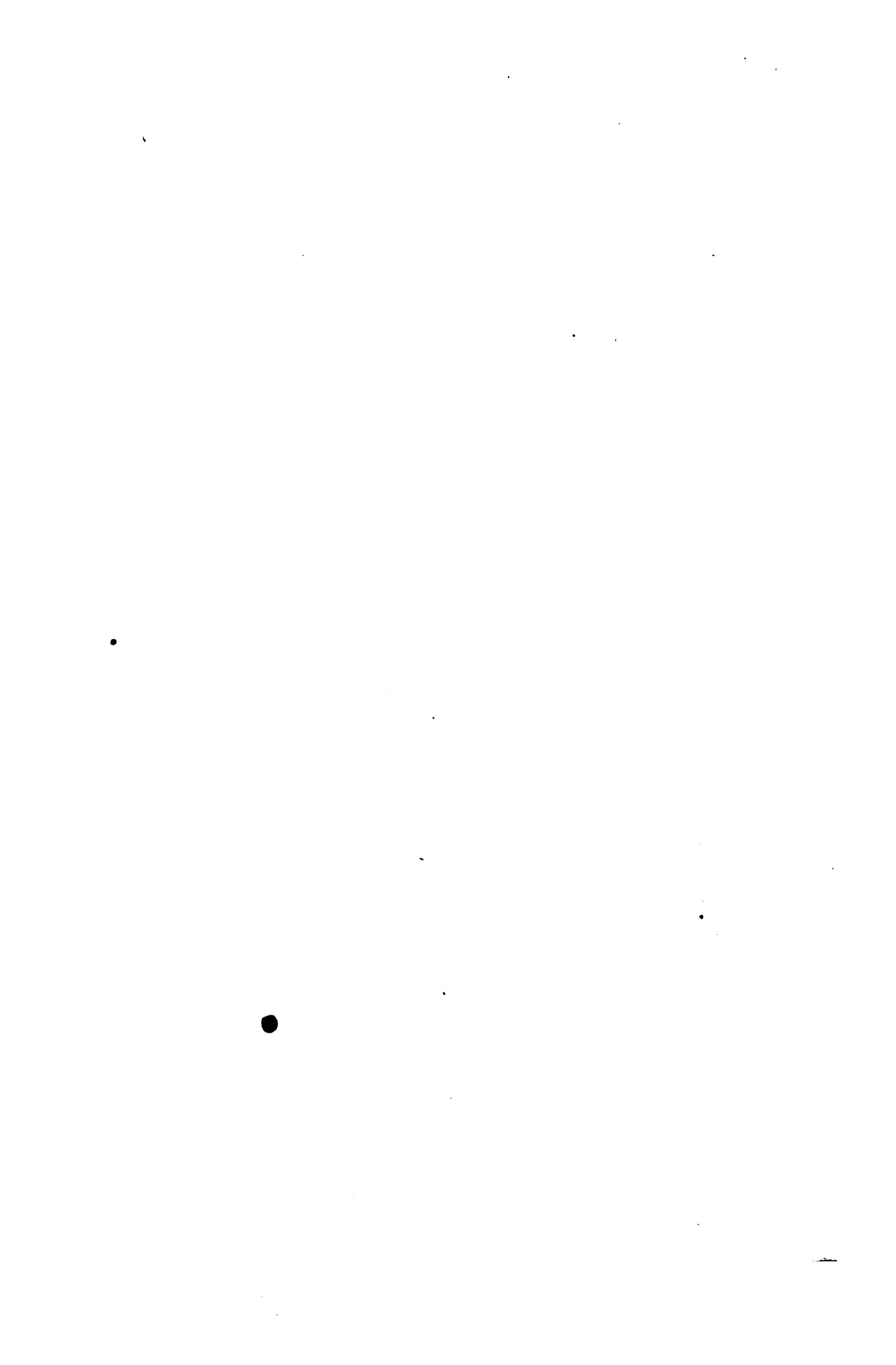














THE JEANNETTE CRUSHED IN THE ICE.

THE JEANNETTE:

AND A

COMPLETE AND AUTHENTIC

NARRATIVE ENCYCLOPEDIA.

OF ALL VOYAGES AND EXPEDITIONS TO

THE NORTH POLAR REGIONS,

CONTAINING A

COMPLETE ACCOUNT OF THE MOST REMARKABLE EXAMPLES OF HEROISM,
ENDURANCE AND SUFFERING ON RECORD.

EMBRACING THE BIOGRAPHY AND VOYAGES OF

FRANKLIN, KANE, HAYES, HALL, AND DE LONG,

WITH AN ACCOUNT OF THE DEVELOPMENT OF ARCTIC NAVIGATION THROUGH THE VOYAGES OF THE
NORSEMAN, THE CABOTS, GILBERT, DAVIS, BARENTZ, HUDSON, BAFFIN, BEHRING, MACKENZIE,
COOK, SCORESBY, PARRY, WRANGELL, ROSS, NARES, NORDENSKIOLD, SCHWATKA, SMITH,
YOUNG, AND MANY OTHERS; AN ACCURATE DESCRIPTION OF ALL IMPORTANT
SCIENTIFIC AND GEOGRAPHICAL DISCOVERIES EVER MADE IN THE

FROZEN NORTH.

BY

CAPT. RICHARD PERRY.

ELEGANTLY ILLUSTRATED WITH TWO HUNDRED ENGRAVINGS.

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PREFAGE.

The universal interest in Arctic exploration which has been aroused by the melancholy fate of the Jeannette, her commander, and so large a portion of her crew, has suggested the writing of this work. While this has been its direct and immediate inspiration it was deemed advisable to enlarge its scope so as to include similar and correlated voyages from the earliest period.

It has been written in sympathy with the heroic efforts of the explorers who in every age have labored in this field for the enlargement of human knowledge.

The general interest in literature of this kind is legitimate and even commendable. A wholesome and bracing intellectual tonic, it energizes the mind. The reading of such works cannot produce other than good results. Free from the tedium of minute chronology and burdensome detail, they possess all the most attractive elements of history, biography and travel—a triple combination unsurpassed even by poetry, fiction or romance.

The taste of the artist and the skill of the engraver have been brought into requisition to enforce and illustrate the information conveyed, adding a charm and value that will be readily appreciated by every reader.

In the hope that this work will contribute its share toward driving out of general circulation the mass of poisonous trash that is suffered to represent, or misrepresent, our current literature among such multitudes of the youth of our land, it is herewith respectfully submitted to the kind consideration and patronage of the public.

LIST OF AUTHORITIES.

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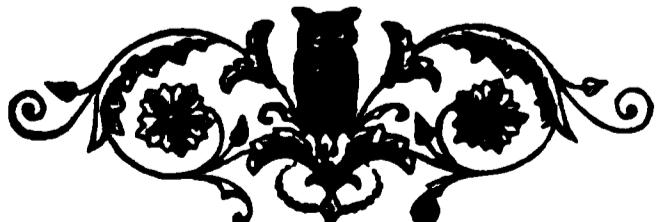
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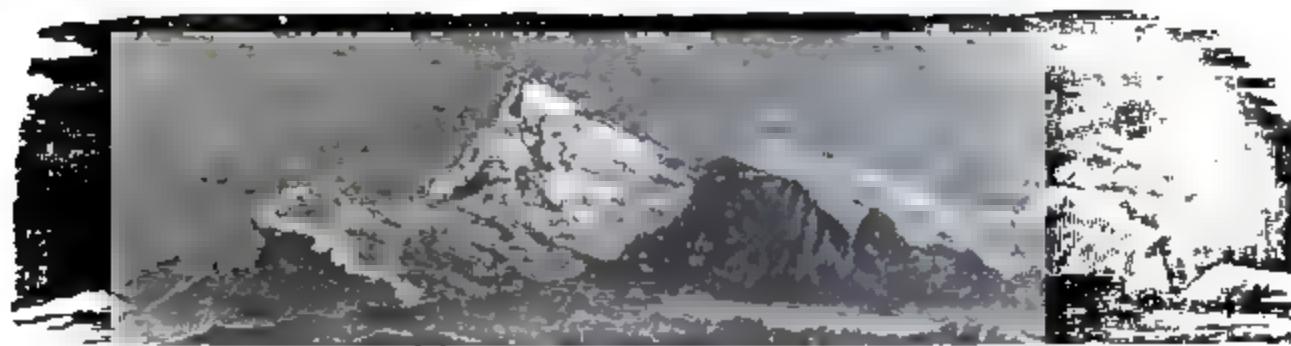
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PART I.

♦EARLY EXPLORERS.♦



*“ When swords are gleaming you shall see
The Norseman’s face flash gloriously,
With looks that make the foeman reel;
His mirror from of old was steel.
And still he wields in battle’s hour
That old Thor’s hammer of Norse power;
Strikes with a desperate arm of might,
And at the last tug turns the fight,
For never yields the Norseman.”*

CHAPTER I.

CONCEPTIONS OF THE ANCIENTS—VOYAGE OF PYTHEAS—DISCOVERS THULE—ORIGIN OF THE NORSEMEN—POLITICAL DEVELOPMENT—A CAREER OF PIRACY—GREENLAND AND ICELAND COLONIZED—INCIDENTAL DISCOVERY OF NORTH AMERICA.

Although with the discovery and colonization of Greenland and Iceland by the Norsemen, practically begins our knowledge of the Arctic seas, the secrets of the hidden North had long been a favorite theme of speculation. The fruitful imaginations of the ancients attached marvelous features to this mysterious region.

It was the region of darkness, but as in the succession of events day sprung from night, so in their thought did light and its benefits emanate from the North. Here the Hindoos located the dwelling-place of their deities, where those divine beings veiled their godlike attributes in misty obscurity. Here dwelt the gods of Scandinavia ; and from here they directed watchful eyes to guard and protect the interests of their worshipers. When the Aurora Borealis shed its soft light over the frosty earth, dispelling with its radiant glory the gloom of night, then the simple minds of the people discovered in the sky the dreadful shapes of their gods, and trembled and rejoiced.

Thus, too, the father of history relates how the Hyperboreans—“of all the human race, the most virtuous and happy, dwelt in perpetual peace and delightful companionship with the deities, under cloudless skies, in fields clothed with perpetual verdure, where the fruitful soil yields twice-yearly harvests, its blest inhabitants attain extreme old age, and at last, when satiated with life, joyfully crown their heads with flowers, and plunge headlong from the mountain steeps into the depths of the sea.”

But all this belongs to tradition and song rather than to history. The happiness we crave is instinctively located in some far-off, unattain-

able place, and the existence of this tendency may explain the facts above recorded. All the certain knowledge which nations of antiquity had of northern territories may be very briefly summarized, for as yet compass and sextant were unknown, and the few intrepid adventurers that dared at all to brave the fury of the sea, did so almost blindfolded, and at the peril of their lives. The Tyrians and Phœnicians had left their native shores to find in other regions, the wealth which their own rugged coasts yielded so scantily. Carthage had been founded on the coast of Africa ; and the Greeks, in the traditional voyage of the Argo, had wreathed themselves with glory and given a subject for many a pleasing song ; but none as yet had ventured to try the dark regions of the North, and its secrets remained its own, to be unlocked by the genius and bravery and invention of more modern times.

Thus, all records by northern historians of the events occurring before the Christian era may be set down as mythical or uncertain ; for classical antiquity exhibits a very obscure notion of the geography of Europe beyond the German Ocean. This is illustrated in the fact that the ancient Greeks and Romans considered Scandinavia an island, or cluster of islands in the Northern Seas ; and other ideas, equally erroneous, suffice to show the obscurity in classic times which clothed this unexplored region.

The first, and for a long time the only voyage to northern regions, recorded by any nation of letters, was made by Pytheas of Marseilles—a Greek colony in France.

The date of Pytheas, who was the most celebrated navigator of his time, is approximately placed at 330 B. C., making him about contemporaneous with Alexander the Great. He is the only explorer of the pre-Christian period, who, so far as we may judge from authentic records, at all approached in spirit the heroes of modern navigation. Regarding his birth and the circumstances of his private life we have little or no trustworthy information ; but what is more important to us in this connection, we know that he explored the Northern Seas of Europe. The ancient geographers, like conservative pedants of a more recent period, professed to place little reliance on his statements. Both

Polybius and Strabo treat him with the utmost severity and ridicule, and mention his accounts as absurd and incredible—a proceeding quite customarily following any important discovery on land or sea, in mind or matter, philosophy or art. “Absurd” has echoed through the ages, as the response of the ignorant to what has been contrary to their pre-conceived notions.

Modern writers are inclined to set more value on the accounts of Pytheas, as well as on all of the best known ancient writers. We gather that he sailed through the English Channel, and, after leaving Britain, a voyage of six days to the North brought him to an island which he called Thule, where he says the sun never descends below the horizon for a certain period at the summer solstice. This statement would apply to Iceland, but the incredulous are supposed to identify his island with one of the Orkneys, because it seems unlikely that Pytheas could have reached Iceland in six days. In Greek enumeration, as in our own, an error of transcription is very easy; and it is more rational to look for a mistake there than to reject a fact of observation which is certainly not applicable to the Orkney Islands; these, moreover, are several in number, and are so close to the mainland, as not properly to fall under the description of being six days' sail from Britain. Some have thought that he had come upon a portion of Norway or Denmark, but the evidence of this is not conclusive. He visited some island at least, and probably named it from his native *telos*, meaning the *goal* or the farthest point.

Pytheas afterward entered the Baltic, and reached a river which he called Tanais, which critics believe to be the Elbe. Here he found a people who made use of amber instead of wood, and as that substance is still found in large quantities in Prussia, there is little doubt that he must have visited that part of Europe. He gave an account of his voyages in two works—“Description of the Ocean”—which contains his voyage to Thule, and “Periplus,” or circumnavigation. He seems to have been the first to determine the latitude of a place from the sun's shadow, and the first to suspect that the tides are influenced by the moon. It is safe to say that he had more of the spirit of discovery and observation than

his untraveled, though scholarly, critics, and with the light of modern research and the aid of modern appliances, such a spirit would doubtless have done much to unravel the tangled skein of northern mysteries.

The true inception of Arctic discovery has already been referred to the Norsemen, whose developments and achievements we may now do well to consider.

VOYAGES OF THE NORSEMEN.

The Norsemen, or Northmen, were known to the ancients as Scandinavians, a more distinctive and appropriate designation which again bids fair to become current in our own day. Some words are like fashions in clothing, they are discarded for a time, but in a generation or two are once more brought into use because of some special appropriateness or utility. Every town, city, county, state, nation, or other geographical district may have its Northmen, but Scandinavians or Norsemen are a special class of Northmen. Norsemen is to be preferred for its terseness, and because



NORSE VI-KING.

Scandinavian has an appearance of being sometimes used in a more limited sense than is here proposed. The original horde from which they sprung seems to have been among the last of the swarms which migrated from the highlands of Central Asia, the original home of the Indo-European or Aryan family of races. In those early days when they began to look around them for a new home, they found by their migratory experience, if not otherwise, that their elder brothers, the Per-

SEA-LIFE OF THE NORSEMEN.

sians, Greeks, Latins, Celts and Sclavs, had seized the southern and central portions of Asia and Europe, and there remained but the lands of the inhospitable North. These they overspread, subduing the earlier inhabitants, the stunted and swarthy Finns of the great northern peninsula. This was an overland migration, and the immigrants had no knowledge of ships.

In the eighth century of our era they had so increased and multiplied that they might be said to have been compelled to renew their travels, this time by water. Meanwhile they had learned to build and use ships. The cold hillsides of their native land had been brought into rude cultivation to supplement the more fertile plains. But still they grew and multiplied and necessity taught them to find in their inlets and bays a valuable addition to their stores of food. Fishing, the natural introduction to seafaring, is calculated to produce hardy and dexterous seamen. And we find that the Norse leaders and their crews, when they sprung into the foreground of mediæval history, were bold and skillful mariners, brave and active fighters, and ever ready to face danger in pursuit of spoils. They were more than a match for the agricultural, manufacturing and commercial nations round about them. Their agriculture was scant, and of trade and manufacture they were ignorant. If to these be added the all-pervading influence of a religion which taught that death in battle was but a passage to the happy immortality of Valhalla, we have a combination of the conditions necessary to form a conquering people. As is usual in the early history of nations, they are found divided into a number of tribes or clans under petty kings or chiefs. At the actual period of their historic inroads they were just passing into the more pretentious form of consolidated monarchies, with the chiefs of the old régime crystallizing into the hereditary nobles of the new, and especially of the rank known in their language as jarls, in ours, earls. Though politically subordinate to the sovereign, these earls retained much of their former power in their relations to those beneath them. Whether by the term *vikings* we are to understand these chieftains—as if “vice-kings”—or, as seems more probable, “fiord-folks,” it is certain that leaders and people alike were enterprising and brave.

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PIRACY.

that the relatively luxurious and effeminate deni-
puld be easily induced by a little show of violence
y the surrender of a portion of their wealth, or
the hardihood and daring of those

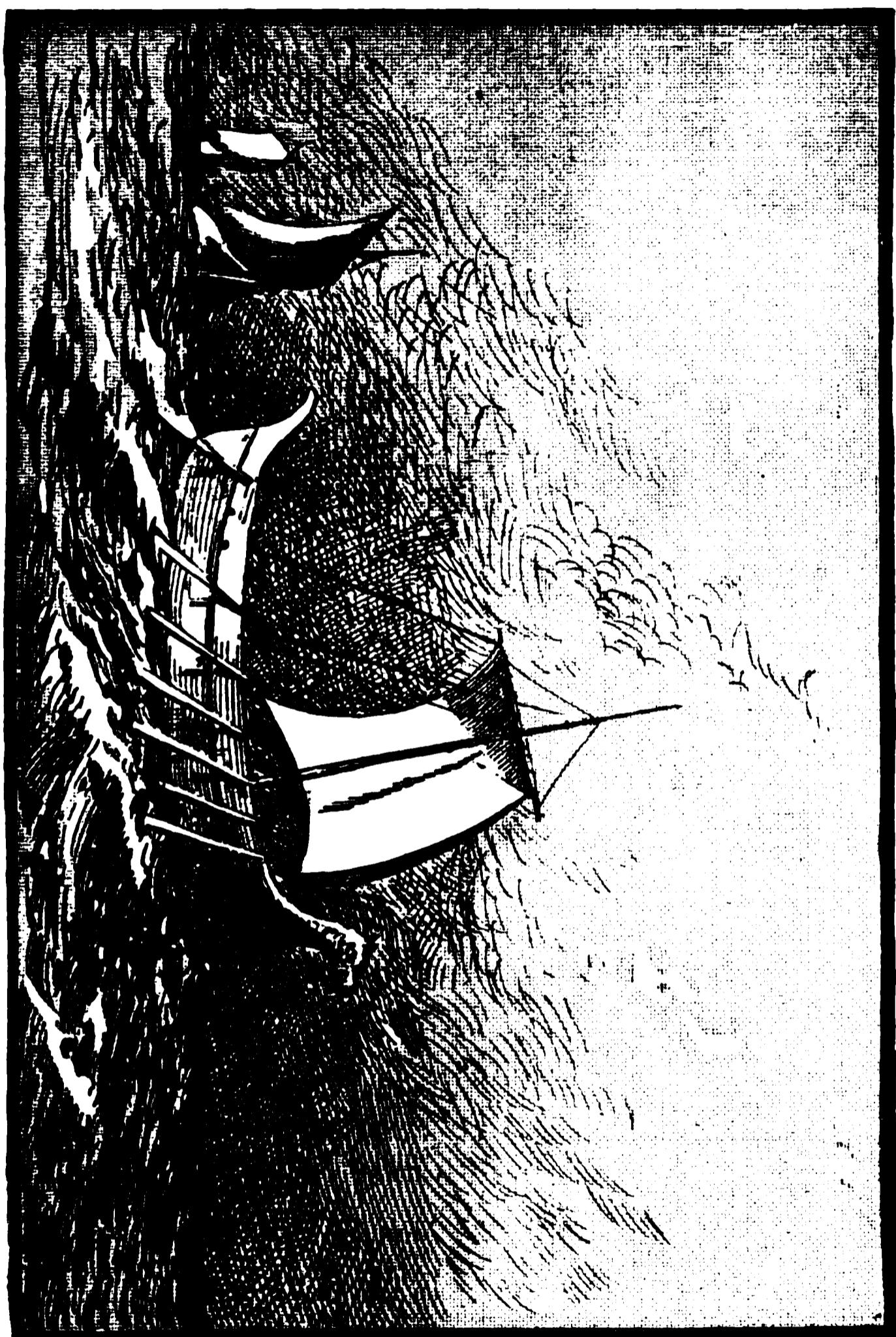
—Crim vikings, who found rapture
In the sea-fight, and the capture,
And the life of slavery,"

to which they reduced such as were not rich enough to pay a ransom.

The Norse vikings, with no wealth but their ships, no hope but their swords, swarmed upon the ocean, plundered every district they could approach, and for several centuries spread blood, rapine and misery over the nations of Europe. All their habits, feelings and associations were ferocious. They regarded piracy and plunder as the most honorable method of securing wealth. Raw flesh was a toothsome delicacy, pity was weakness, and tears were unmanly. They relieved the monotony of the regular occupation of killing and plundering adults by a sort of sportive game in which they tossed from lance to lance, with wonderful dexterity and precision, helpless infants wrenched from the arms of their slaughtered mothers. They knew no glory but the destruction of their "enemies" or victims. When they fell upon a district they not only robbed it of its accumulated wealth, but destroyed the growing crops with ruthless barbarity. Peaceful, prosperous and civilized communities had a very special value as a rich harvest to be gathered all the more easily because of the refinement of the owners.

With the exception of the warlike Franks inured to war's alarms and encouraged by a long array of military successes under their great Karl (Charlemagne), Europe lay at the feet of the freebooters of the North. To do them justice, however, or rather to enforce the law which impels man to postpone the hazard of his life until all peaceful means of support are exhausted, we call the reader's attention to the following fact. Before entering on a career of piracy, the Northmen had sought to peacefully colonize the cold, inhospitable regions of Iceland and Greenland, as well as the more genial but circumscribed regions of

NORSE SHIRTS.



the Faroe, Shetland, and Orkney Islands. It was an age when the necessities of a surplus population appealed to the law of the strongest. Our more civilized methods of piracy do not so harrow human sensibilities, but the law of "might gives right," may still be traced by any one given to reflection.

At first the marauders paid only flying and stealthy visits to unprotected coasts; but afterward, emboldened by success, and strengthened by the accessions which the fame of their exploits and the resulting harvests of booty brought to their support, they made deeper inroads; and finally effected permanent lodgments in Russia, England, Ireland and France. In Russia they were known as Varangians, that is, "sea-warriors," who gave a king and dynasty, Rurik and his successors, to that country. In England and Ireland they were known as Danes; and in France as Normans, where they became possessors of Normandy, whence too, under their Duke William, their descendants invaded and conquered England in 1066.

Their first permanent settlements in the Faroe, Shetland, and Orkney Islands are supposed to have been made about the middle of the ninth century. In Iceland the date is more authentic, being placed by the best authorities in A. D. 874. The accidental discovery of Greenland followed two years later, but no effort at colonization seems to have been made until 985, two years after its re-discovery by Eric the Red. Iceland became self-governing in 928, and remained independent until 1387, when it submitted to the king of Denmark and Norway. Greenland "prospered" for several centuries, receiving its first bishop in 1121, and its last one in 1406. The population was decimated by the "black death"—and that of Iceland, also—and it could no longer support the expensive luxury of a bishop. With the bishop, in 1409, doubtless went the annalist of the colony, as there is no further record of Greenland for nearly two hundred years. The truth probably is that as only the pressure of over population at home could have reconciled them to an abode in dreary Greenland and frozen Iceland, so when that was removed by the "black death," which swept off 25,000,000 of the population of Europe in three years (1348-51), there were no new accessions, and the

more enterprising and active of the survivors in both colonies may have found more congenial homes among their kindred in Europe.

Besides these authentic voyages of the Norsemen to Greenland and Iceland, there are some alleged voyages to the latter made by more southern navigators. There is a story of the Zeni brothers, of Venice, who are said to have explored those Northern seas, and to have discovered certain northern islands, one of which is conjectured to have been Iceland. And it is even possible that Columbus himself visited those latitudes fifteen years before his great discovery; for in one of his letters is found this statement: "In 1477 I navigated one hundred leagues beyond Thule." A favorite identification of the Thule of Pytheas of Marseilles has been with Iceland; but it is thought that mediæval writers may have rather inclined to identify it with the largest of the Shetland Islands.

An incidental result of the discovery and colonization of Iceland and Greenland referred to above, was the discovery of the continent of North America, and some of the smaller islands along the coast, although, as is well known, this fact led to no very permanent results. Biarne Herjulfson is said, by tradition, to have sailed from Iceland for Greenland, in 986 A. D., but on account of fogs and north winds, lost his course and came upon the coast of a strange land, which he sighted at different times in a northern direction. It is thought that he came upon the Atlantic coast of North America, perhaps at Newfoundland or Labrador, and sailed along it until he arrived at the colony of Eric. He did not land, however, until Greenland was reached.

In the year 1000 this discovery was repeated by a son of Eric the Red, who, with thirty-five men, explored the coast of North America for a long distance from north to south. After landing at a spot supposed to have been Labrador, he sailed to the south, and discovered a pleasant country, which was called Vinland, from the abundance of grapes found upon it. Here they spent the winter, and two years later Thorwald, another son of Eric, visited the place and discovered Cape Cod. After this Vinland was quite extensively colonized from Greenland and was variously visited by Norse voyagers. The colony was

supported for a few years, but owing to the fierce attacks of the natives, the enterprise was finally abandoned. A son born to Karlsefne, the head of the Vinland colony, was the first child born to European parents on American soil; his mother was the beautiful and brave Gudrid.

"The boy was named Snorri, and in his noble manhood founded one of the most distinguished families of Newport, Rhode Island, and the inscription upon Dighton Rock, which lies upon the bank of Taunton River, are memorials of the visits of these Northmen.

Such a beginning, then, had the series of adventures to whose description this volume is devoted—adventures which, made in the cause of science, and requiring the highest degree of manly courage, must thrill all with their dangerous and desperate character.



STONE TOWER, AT NEWPORT.

Iceland, then the abode of princely Scandinavians, with their retinues of armed followers."

Not many relics of those settlements remain, though it is claimed that the old stone tower at



CHAPTER II.

PORtUGUESE AND SPANISH DISCOVERIES — PORTUGUESE VOYAGES TO NORTH AMERICA—VORACITY OF THE SPANISH—RESULTS OF COLUMBUS' DISCOVERY — VOYAGES OF THE CABOTS — FIRST VOYAGE AROUND THE WORLD—VOYAGE TO LA PLATA—FRENCH VOYAGES.

The gradual way in which the maritime enterprise of the Portuguese led them to the discovery of the ocean route to the East Indies, marks the distinctive character of their voyages. The final result was the slow, deliberate and laborious outcome of several previous adventures carried on in a systematic manner. To Prince Henry, surnamed the navigator, because of his patronage of these enterprises, Portugal was largely indebted for her early naval supremacy among modern nations.

Madeira was discovered in 1420; Cape Bojador was passed in 1439; and Cape Verd in 1446. The Azores were discovered in 1448; the Cape Verd Islands in 1449, and St. Thomas in 1471. In 1481 the Pope granted to the crown of Portugal all the countries which the Portuguese might discover beyond Cape Bojador. In 1486 Bartholomew Diaz, while on an expedition to explore the west coast of Africa, was driven by high winds to the mouth of the Great Fish River, actually, but unconsciously, doubling the most southern point of Africa. On his return, in 1487, he named the headland Cape Tarmentoso. In 1497 Vasco da Gama doubled Cape Tarmentoso, which he named the Cape of Good Hope, and in 1498 arrived in India. By this discovery of an ocean route to India, the trade of the East was diverted from the old channel of the Red Sea and the Mediterranean, and the commerce of the world was revolutionized.

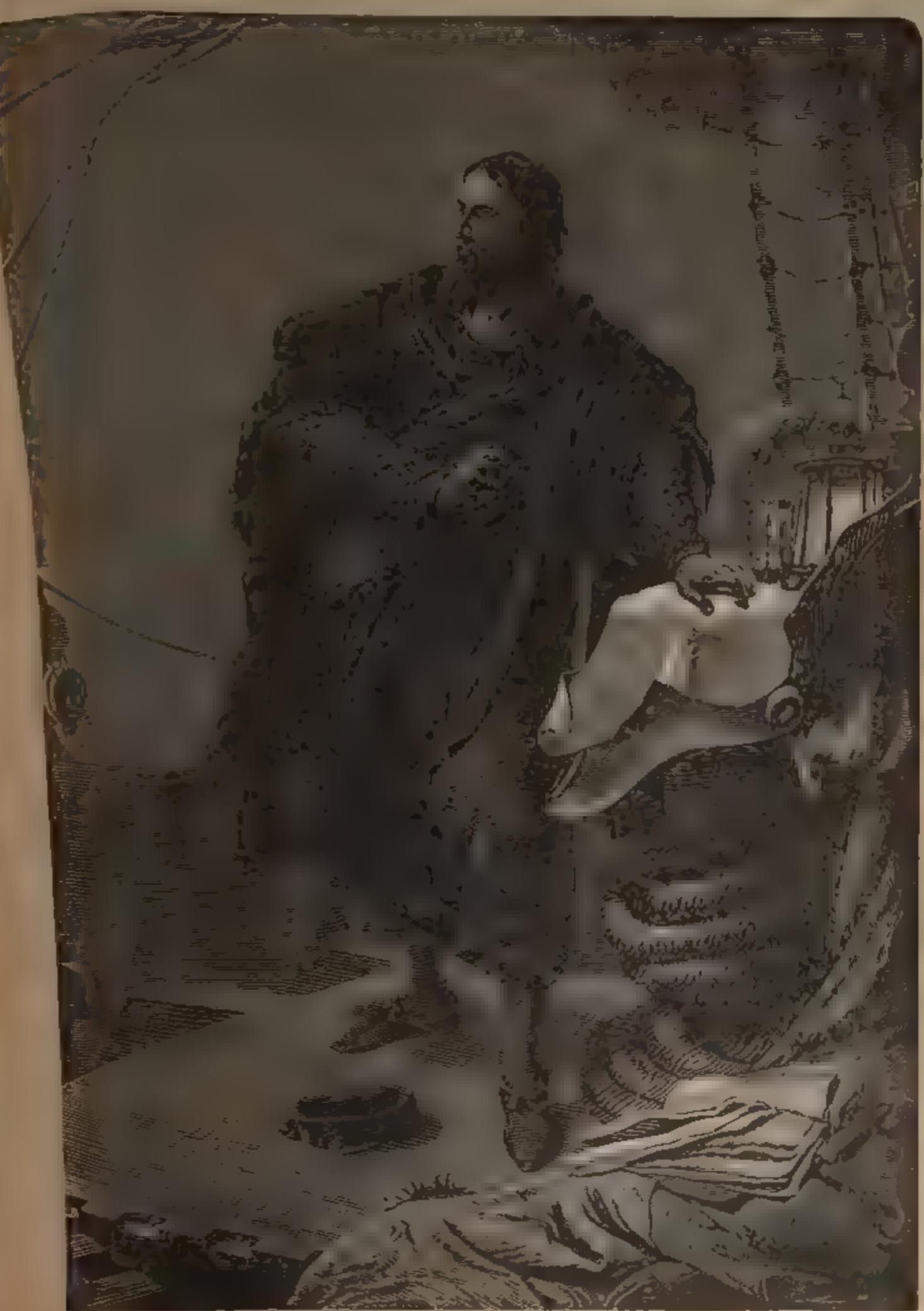
Early in 1500 Pedro Alvarez de Cabral, on a voyage to the East Indies by the way of the Cape of Good Hope, fell in with the land now

known as Brazil, and promptly took possession of the same for the crown of Portugal. Two Portuguese voyages to North America, under Gaspar Cortereal, in 1500 and 1501, left no memorable incidents, except his cruel kidnapping of natives on the first, and his own disappearance on the second. A third voyage, in 1502, under Miguel Cortereal in search of his brother Gaspar, resulted in a similar disappearance; and Portugal never gained a foothold in North America. The success of Da Gama and Cabral had found a more profitable outlet for Portuguese commerce and colonization, and their various enterprises in South America, West and South Africa, and the adjacent islands, as well as in the East Indies, afforded ample scope for all the surplus energies of prince and people. Before dismissing Portugal from the field of observation, we would remind the reader of the well known voyage of Magellan, a Portuguese in the service of Spain, in 1520, and the discovery of the straits called by his name—a southwest passage to India, or rather to the islands of the Pacific and to Australia.

SPANISH VOYAGES.

The greatest and most wide-reaching in influence of all the voyages of discovery, was that of Columbus, in 1492, in search of a western passage to India. His great discovery was not like so many of the preceding ones, an accidental happening or a lucky hit, nor the direct consequence of other explorations immediately preceding, as was Da Gama's; but the result of an intellectual conception carefully elaborated and founded on geographical data. Any number of discoveries by storm-driven Norsemen or cod-fishing Bretons, or adventurous Welshmen—were the facts established beyond all doubt—could not rob Columbus of the peculiar glory of his great achievement.

By birth a Genoese, but failing of proper encouragement at home and in other countries to which he had submitted his projects, Columbus, then in the service of Spain, sailed from the port of Palos to find a western passage to India, and in ten weeks came in sight of land. The now old and familiar story will not be repeated here, as only its influence and bearings upon later voyages farther north, come within



COLUMBUS FIRST SIGHT OF LAND.

the scope of our work. He died fourteen years later, in poverty and neglect, after four voyages to the New World, still under the impression that he had reached some portion of India by a western route. Within fifty years of his discovery, the geographical knowledge in the possession of mankind was doubled ; and the foundations of modern accuracy and fullness in that regard were deeply laid.

PORtUGUESE AND
SPANISH EXPLORERS.

Spanish navigators in great numbers followed in the wake of Columbus, some originally his subordinates and associates, others not specially connected. When the way is opened by genius, talent is ever

ready to step in and gather results. Ojeda, Vespuccius, Pinzon, Bastides, Balboa, Grijalva, De Solis, De Leon, De Cordova, Cortes, De Ayllon, Pizarro, Almagro, and many others, increased the area of Spanish exploration and conquest in America, and, it might be said, added to the infamy of their cruel oppression and heartless enslavement and depopulation of the native races, in Central and South America, in Mexico and the West Indies. The Spanish exploration of North America by Gomez, in 1524, led to important results, but was signalized by the customary Spanish barbarity to the natives, several of whom were kidnapped and sold into slavery, making the venture commercially profitable, but morally infamous. And so it hath ever been—

“ Regard of worldly muck doth foully blend
And low abase the high, heroic spirit.”



CHRISTOPHER COLUMBUS.



The wealth which Spain wrenched with heavy hand from the luckless natives who fell under her sway, was lavished in wasteful luxury and expensive wars. Like others, her growth would have been more solid and her prosperity more enduring had she been content with fair returns from her American possessions. But her voracious greed and atrocious cruelty plucked out the eyes of the New World—and her own. Mexico and Peru were extinguished, their civilization destroyed, and their wealth confiscated by the unwise, as well as cruel, policy of her conquerors. Liberty and justice are the two pillars of national prosperity which no violence of brute force can pull down, and which alone can defy the assaults of internal and external foes. After nearly four hundred years of mistaken policy, a new generation of nobler sons have begun to guide the ship of state on wiser principles.

After the discovery of America by Columbus, and the recognition that the land surface of the globe had been considerably enlarged by a long stretch of territory, the width of which, however, was not ascertained till long afterward, the search for a passage through it to the Indies was not relinquished. In 1513 Balboa had found the "South Sea," now the Pacific Ocean, and after having with immense labor, patience, and perseverance, built some vessels on the Gulf of Panama—"an enterprise no leader save he could have carried to a successful issue"—he cruised on its waters beyond St. Michaels. But his premature death at the hands of his rival Davila, of Darien, in 1517, deprived him of the opportunity of further exploration. The reports sent by Balboa to Spain in relation to the great wealth of the regions south of Panama inflamed the zeal and avarice of the Spaniards, and many expeditions were organized with a view to exploration and conquest. In their search for gold they enlarged the area of geographical knowledge, but their destruction of the civilizations of Mexico and Peru has robbed humanity of an inheritance for which that is no recompense. That would eventually have been reached without their aid, but the loss referred to can never be repaired.

One of the first results of Columbus' discovery of the New World was the re-discovery of North America. The English "Society of Merchant Adventurers," was established in 1358 under the name of "The

Thomas à Becket Society," and the whole body of English traders were eager to share in the commerce of India, China and the East generally. The Pope had early granted, almost as soon as the discovery was fully authenticated, a sort of monopoly of the advantages of the Eastern discoveries to the Portuguese, and of the Western to the Spaniards. By a bull of 1493 the meridian of 100 leagues west of the Azores was established as a line of demarcation between the two powers. By the treaty of Tordesillas, in 1494, and a confirmatory bull in 1506, the line was extended to the coast of Brazil, or 375 leagues from the Azores. The adjoining country inland, extent unknown, was understood to follow the fortunes of the coast. The method of division was unscientific and unfortunate, but as far as other nations were concerned it was supposed to cut them off from all share in the great discoveries of the period. The English were determined to find, if possible, a solution which, while it would not formally antagonize the high authority of the Pope—at that time an accepted and important element in international law—would let them into a substantial share of the results. This was the origin of the celebrated theory of a Northwest Passage to India and Cathay, or China, which will be more fully treated in a succeeding chapter.

In pursuance of this theory the Cabots, John and Sebastian—father and son—sailed with three vessels, in 1497, from Bristol, then the leading commercial port of England. They virtually discovered North America, as it is not known that the discovery of the same region some 500 years before, had any influence on their course or its results. As nearly as can be now determined, the region actually discovered, and which they loosely designated by the name of "The Land First Seen," was Labrador. Though not signalized by large immediate results, and in a commercial sense unprofitable, this voyage was one of the most momentous in the history of the world. It was the corner-stone of England's colonial system and indirectly of the greater glories of the American Union, with its incalculable contributions to the elevation and progress of mankind. Our minds cannot grasp the immensity of these results, but the effort to seize the dim outlines of the mighty fabric will amply repay.



SEAN TAN CABOT.

In a second voyage, about a year later, Sebastian Cabot, in command of two vessels and 300 men, explored the coast from Labrador to Chesapeake Bay, perhaps to Florida. He named Newfoundland and noted the great numbers of codfish to be found on its banks—a discovery, however, in which he had been anticipated, it is thought, by the fishermen of France. He reached latitude 58° , and perhaps higher, but encountered so much floating ice, though it was in the month of July, that he concluded to return to England. Nothing more is heard of Sebastian Cabot until 1512, when he entered the service of Spain, where he remained until the death of his patron, Ferdinand V., in 1516. Soon afterward he is again found in the service of England, being given the command of an expedition to Labrador, in 1517, by Henry VIII. To the cowardice or malice of an associate, Sir Thomas Perte, is usually attributed Cabot's failure in this third voyage to North America. But it can hardly be just to attribute it to such a cause. Complete success was impossible at that early stage—step by step man progresses. He explored what is now Hudson's Bay, ascending to $67^{\circ} 30'$, and naming several places. Dissatisfied with the result, or influenced perhaps by the dissatisfaction of his principal, Cardinal Wolsey, who was at that time emphatically "the power behind the throne," and far more interested in finding a passage for himself to the papacy than in promoting the efforts of the merchants of London to discover a route to India, or for some cause not clearly ascertained, Cabot left England and re-entered the service of Spain. The unexampled prestige of its young king Carlos, elected emperor under the historic name of Karl or Charles V., in 1519, may have inspired Cabot with the hope of securing in that powerful quarter the necessary patronage for his cherished project, the Northeast Passage. It is said that he had secured a favorable hearing from the late king for that fantastic dream, but in England the Northwest Passage was still in the ascendant. He was appointed pilot-major of Spain, and was for some years engaged in quietly discharging the duties of that office, for which his exact knowledge of detail and large experience in naval matters from his boyhood, specially qualified him. With Cabot we turn again to Spain and its maritime enterprises.

FIRST VOYAGE AROUND THE WORLD.

Fernando Magalhaens or Magellan (1470-1521), a Portuguese navigator, had attained some distinction in the service of his country in the East Indies, and had taken part in the conquest of Malacca in 1511. While serving under Albuquerque he had made a voyage to the Moluccas or Spice Islands, which he afterward learned were within the jurisdiction of Spain as established by papal adjudication and the treaty of Tordesillas. In 1517 he opened his project of finding a West passage to the Moluccas, to Charles V. of Spain, and an agreement was entered into, March 22, 1518, whereby the King was to defray the expenses, and receive the lion's share of such commercial advantages as should accrue. Magellan received command of five vessels and 237 men for the expedition, and having finally got all things in readiness, he sailed for the New World in 1519. The expedition had to struggle against bad weather, insubordination and mishaps of various kinds, the details of which would be foreign to this stage of our narrative. Magellan discovered and traversed the Strait called by his name in 1520; and was killed in battle with the natives of one of the Philippine Islands, in 1521. His subordinate, Sebastian del Cano, completed the voyage, reaching Spain Sept. 6, 1522, lacking fourteen days of three years since the departure of Magellan.

CABOT'S VOYAGE TO LA PLATA.

Cabot conceived the project of reaching Peru by a more direct route than that discovered by Balboa from Panama, or by Magellan through the Straits which are called by his name. He secured the command of an expedition to explore the La Plata, in 1526, and search for a Southwest Passage to the South Sea or Pacific Ocean, and thence to the East. In 1527 he ascended the La Plata 120 leagues, and discovered Paraguay. He was feebly sustained by the home government, and returned to Spain in 1531. As with the cardinal in England, so with the emperor in Spain, the pre-occupation of more congenial pursuits dwarfed the interest in maritime exploration, and Cabot concluded to again try England, whither he went, in 1548. He perhaps hoped to be able to in-

terest the vigorous and enterprising Duke of Somerset, protector of England, in his now favorite project. He was created inspector of the navy, and instructor of the young King Edward VI. in the nautical science of the day, where we will leave him, while we call attention to another branch of our subject.

FRENCH VOYAGES TO NORTH AMERICA.

During the fifty years succeeding the discovery of America by Columbus, Cabot, and Vespucci, France was too deeply involved in European wars to give much attention to maritime discovery. Louis XII. (1498-1515), Francis I. (1515-47) and Henry II. (1547-59), successively struggled with Austria for the possession of Lombardy. The defeat of Francis at Pavia, in 1525, by throwing the nation into financial and political disorder, put an end to Verrazzano's otherwise successful exploration of the



JACQUES CARTIER.

coast of North America. After the peace of Cambray, Francis — failing to find, as he said, any clause in Adam's will disinheriting France in favor of Spain and Portugal — renewed his interest in American explorations. In

1534 he sent out Cartier, who discovered the Gulf and River of St. Lawrence, and in a second voyage, in 1535, ascended the river to what is now Montreal, where he wintered peacefully with the natives. In two other voyages (1541-1543) he maintained the most friendly relations between the French colonists and the Indians. Pontgrave in 1599, De Champlain, from 1603 to 1635, De Monts (1604) and other French explorers of North America followed the example of Cartier, or the natural instincts of their race, in the humane treatment of the American Indians, winning a place in their good graces which no other Europeans have been able to reach. The story of these events, however, belongs to the history of colonization, not to that of Arctic voyages, but being the most northerly voyages of the period which left abiding results, they are at least worthy of brief mention.

CHAPTER III.

SEARCH FOR NORTHEAST PASSAGE—VOYAGE OF CHANCELLOR—ENTERPRISE OF MUSCOVY COMPANY.

In the meantime Cabot had elaborated his pet scheme of reaching India by a Northeast Passage, evidently having no adequate conception of the extent or configuration of the north coast of Asia. But however ludicrous it may now appear, the project led to important results. It opened the way to commercial relations with Russia, then starting out on an independent career; and it has also exerted great influence on the history of Arctic voyages.

Under the auspices of Cabot and his royal patron, the search for the Northeast Passage was now begun. In 1553 three ships were fitted out at the expense of the "Merchant Adventurers of London," and under the superintendence of the aged Cabot. The vessels were named Buona Speranza, or Good Hope; Buona Confidencia, Good Confidence; and Buona Ventura, Good Success; and were commanded, respectively, by Sir Hugh Willoughby, Cornelius Durforth, and Richard Chancellor. The squadron sailed on the 20th of May, 1553, but at the Loffoden Islands, or after rounding the North Cape, they became separated, and the Buona Ventura entered the White Sea, till then unknown to European navigators. The other two held together some time longer, drifting around between the north coast of Lapland and the Arctic Island of Nova Zembla. Before the close of the year the "Confidence" returned to England, having become separated from her consort in another storm. The ensuing year some Russian fishermen found the Good Hope hemmed in by ice at the mouth of the Dwina, in Lapland, and her entire crew frozen to death. Willoughby's journey had closed with January, 1554, and that was no doubt the date of their destruction—the first of a long series of victims to the severity of Arctic seas, and their own inex-

perience. Had they been skilled in the resources of the north, they could have protected themselves against the severity of the weather by laying in a stock of the mossy turf or peat, for fuel, and have secured by hunting, ample provisions to sustain them through the winter. The intelligence of the most advanced nations must be combined with the hardihood and experience of the rude inhabitants of the North before Arctic exploration can be other than a useless sacrifice of human life.

Chancellor, more fortunate, reached the mouth of the Dwina, and landed at the monastery of St. Nicholas, near where Archangel was founded in 1584. Notwithstanding the hardships of the journey, Chancellor proceeded to Moscow, the residence of the sovereign, who was no other than Ivan IV., Vasilievitch II., that is, son of Vasil or Basil, and surnamed "The Terrible." Some ten years before he had changed the modest title of Duke of Russia for that of czar and autocrat. However well Ivan may have deserved his surname because of his excessive cruelty to his enemies, the Tartars, and his abuse of unrestrained power over his subjects, he was quite gracious to the English navigator. It was in reality a "good venture" for both parties—the merchant adventurers of London and the autocrat of Russia.

The realm of Ivan was strictly continental and the trade with Western Europe was through the dominion of his enemies, the Poles. Chancellor therefore received every encouragement to renew his venture, and obtained an excellent market for his wares. He returned to England in 1554, and the next year made a second voyage to Saint Nicholas, with four ships and accompanied by two agents who made an advantageous treaty with Ivan. On the return voyage, accompanied by a Russian ambassador to England, he lost one ship on the coast of Norway, and a second in quitting the harbor of Droutheim. He was soon afterward driven by a violent storm into the Bay of Pitsligo, in Scotland, where the Buona Ventura was wrecked. He succeeded in getting the ambassador into a small boat with himself, but the boat was upset and the navigator drowned, while the inexperienced landsman escaped with the loss of some wares and gifts which he was taking to England.

In 1556, the Muscovy Company—as the Merchant Adventurers of

London were now called—dispatched the Serchtrift in command of Stephen Burrough, who had served as pilot, or sailing master, of the Buona Ventura in 1553, to make further search for the Northeast Passage and the mouth of the Obi. Burrough reached the strait between Nova Zembla and Vaigats Island, now known as Kara Gate or Strait, but was driven back by the ice and returned to England. Burrough wrote an account of his voyage.

It was thought that the promontory forming the eastern cape of the Gulf of Obi was the northeast corner of Asia, and that therefore Nova Zembla and the Kara Strait were distant only some 400 miles from the east coast of Asia. In this view the great geographer of the day, Mercator, concurred; and this naturally gave fresh impetus to the unavailing search. But the best authorities are liable to err, even in the line of their special investigation.

“I do not know,” says Milton, “what I may seem to the world, but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smooth pebble, or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.”

All attempt to explore the route to Asia by the way of the White Sea and the Gulf of Obi was now abandoned for nearly a generation, and English enterprise was again directed to the Northwest Passage, which they had given up in 1517. This change in the direction of experiment is the best evidence of the strong hold the problem had taken of the public mind. England had as yet no hope of becoming mistress of the ocean, and she wished to have a route to the East which would be less exposed to the attacks of an enemy’s fleet. It is thus that a great part of a nation’s efforts and resources are wasted in preparing to defend itself against the hostility of other sections of the human family.

CHAPTER IV.

SEARCH FOR NORTHWEST PASSAGE RESUMED—FROBISHER'S LOAD OF GOLD — TWO VOYAGES OF GILBERT — GILBERT SHIPWRECKED— HAWKINS, THE SLAVE-TRADER — DRAKE SAILS AROUND CAPE HORN.

It was almost fifty years since the failure of Cabot, when Martin Frobisher succeeded in again turning the British mind toward the Northwest Passage. In 1576 Sir Humphrey Gilbert published his "Discourse to Prove a Passage by the Northwest to Cathaia." This was the year of Frobisher's first expedition, but he had been some years laboring to secure the acceptance of his views; and Gilbert's pamphlet shows the bent of public opinion rather than the source from which, as has sometimes been alleged, Frobisher received his inspiration. It is more probable that his fifteen years' pleading with the merchants and nobles of England for aid to enable him to attempt the execution of what he called "the only great thing left undone in the world," was the origin of the "Discourse."

Frobisher had at length found a patron in Ambrose Dudley, Count of Warwick, and a favorite of Queen Elizabeth; and set sail on the 8th of June from Deptford, now a part of the city of London, with three vessels, two of which were only of twenty-five and twenty tons burden, the third a man-of-war; or as others say, with three small barks of 35, 30 and 10 tons. As he moved down the Thames he was graciously saluted by the queen from her palace at Greenwich. The smallest vessel went down in the first storm, as might have been expected, and all her crew perished. The second returned to England, while the largest, under the immediate command of Frobisher, safely reached the coasts of Greenland and Labrador. After coasting around the Savage and Resolution Islands, he entered the strait which

PRONTOBAN PARKING SERVICE.



he named after himself, and which is so called to this day, near 63° north. He was hindered by the ice from extending his voyage farther, but before returning to England he went ashore and took possession of the country for Queen Elizabeth, and established some slight but friendly intercourse with the natives, whose land he named Meta Incognita, that is, Unknown Boundary.

Taking with him some dark, hard stones, the luster of which was erroneously attributed to the presence of gold, he set sail for England, where he was enthusiastically received. The report that Frobisher had brought back some gold-bearing stones inflamed the public mind; and there was no danger that he would be compelled to languish another fifteen years, waiting for patronage. A second expedition, with three vessels of goodly size, was soon made ready and set sail under his command in May, 1577. At the entrance of Frobisher Strait his passage was again blocked by the ice, but he took aboard 200 tons of the "precious ore," and returned to England with the blissful consciousness of having made a prosperous voyage. In 1578 a fleet of fifteen vessels were placed at his disposal, and he hastened away before Portugal or Spain should learn of the great "find" that was destined to dwarf the treasures they were draining from the East and West Indies.

"The best laid schemes o'mice and men
Gang aft a-glee;
And leave us naught but grief and pain
For promised joy."

One of Frobisher's largest vessels was crushed by an iceberg at the entrance of the strait, and forty lives lost, while the whole fleet was strained and injured by the ice floe. It had been intended to establish a military colony of 100 picked men, and to build a fort for the protection of the rich surface deposit that Frobisher had the good fortune to have discovered lying around loose on the shore of his famous Meta Incognita. On a survey of the situation it was found that a considerable part of the wood destined for the fort would be required to repair the injured ships; and as the effective force of men had been seriously diminished by the

losses already sustained, it was thought best to abandon that project. We may well imagine that the dreary, desolate and forbidding aspect of the country, in a season of excessive severity, would so chill the ardor of those who were to be left behind, that they took counsel of their fears, and preferred to return with the fleet while they had the opportunity.



PORTRAIT OF FROBISHER.

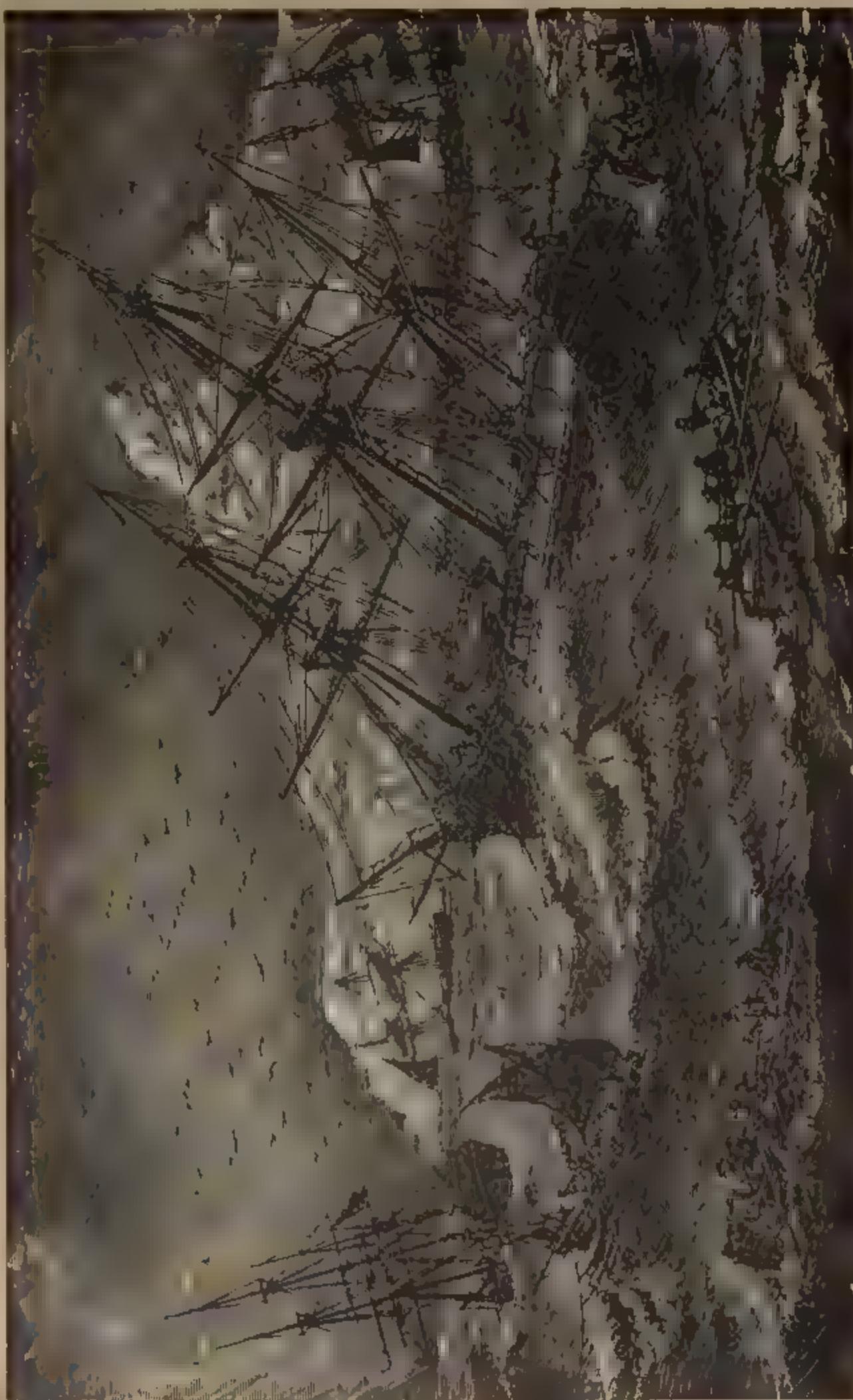
The dreams of Frobisher, and other sanguine participants in his delusion, were rudely dissipated on his return to England, when it was found

that his tons of precious ore were so much worthless stone, brought 3000 miles to swell the rock piles of England. His last voyage had been the severest of the three, and the 500 tons brought home, while they might have compensated for the sacrifices and trials, had they proved valuable, were but an aggravation of the general sense of injury felt by the people of England at the bursting of Frobisher's bubble. Ten years later Frobisher redeemed his name from any obloquy that might otherwise have attached to it because of the great and almost ludicrous disproportion between his sanguine anticipations and the meager results. In the contest with the Spanish Armada, in 1588, he was captain of the *Triumph*, and did such signal service in the discomfiture of the arrogant Spaniards, that he was knighted for his bravery. All honor to Sir Martin, and a genial smile for his quaint conceit that the finding of a Northwest Passage was the only thing of note left undone in the world. It was found a generation ago, yet the array of notable things still undone, wonderfully supplemented as they have been by discoveries and inventions never dreamed of by honest Sir Martin, remains substantially undiminished, for "the thoughts of men are widened with the process of the suns."

TWO VOYAGES OF GILBERT.

Sir Humphrey Gilbert, already referred to, received from the queen in 1578, a patent to make discoveries in North America, and to take possession of any part found unoccupied. In 1579 he sailed for the New World with the purpose, as is generally supposed, of colonizing Newfoundland, but this opinion is based mainly on what is known of his second attempt. One of his vessels was lost, but he arrived safely in England. Four years later he resumed the undertaking under more encouraging auspices, but with a more disastrous issue. "On the eve of his departure," says Bancroft, "he received from Queen Elizabeth a golden anchor guided by a lady, a token of the queen's regard." He sailed with five vessels and 260 men, and arriving in Newfoundland, discovered by Cabot in 1497, he proceeded to take formal possession in the queen's name, and issued leases to such of his company as desired them. But the spirit of colonization, with its hard work and slow results, was

CODFISHING ON THE BANKS OF NEW FOUNDLAND.



absent; and he soon proceeded with his whole company to search for silver mines. Soon the largest ship was wrecked through the negligence of the crew, and most of those on board were lost. Gilbert now concluded to return to England with what remained. On the voyage a severe storm arose, and he was earnestly entreated to take refuge in the larger of the two remaining vessels, from the little bark of only ten tons in which he had set out for the coasting voyage. His reply has become historic, and has elicited much admiration for the calm intrepidity it displays. It savors, however, fully as much of fatalism as of piety, and though his action may be regarded as heroic in declining to abandon his associates, the principle implied in what is itself a mere truism, is more poetic than praiseworthy. The scene is thus described, with all proper accessories:

“The general, sitting abaft with a book in his hand, cried out to those in the ‘Hind’: ‘We are as near to heaven by sea as by land.’ That same night about twelve o’clock the lights of the ‘Squirrel’ suddenly disappeared, and neither the vessel nor any of its crew were ever seen again.”

HAWKINS, DRAKE AND CAVENDISH.

These three were famous English navigators of the period we have now reached, being contemporaries of Davis. But as they were chiefly engaged in combating Spanish domination on the ocean, they hardly come within the scope of this work. In prosecuting their paramount purpose of crippling Spain, they contributed some little to geographical knowledge, and on that account deserve passing mention.

Sir John Hawkins has the bad distinction of being the first English slave-trader, and in pursuing that infamous business he became familiar with the west coast of Africa. He suffered heavy loss in an encounter with a Spanish fleet in 1567, which closed his “commercial” career, but gave him the opportunity of winning distinction by his services against his personal and national enemies. He helped to rout the Spanish Armada in 1588, and for the rest of his life, to 1595, his efforts were directed against Spanish trade with the West Indies. His voyages in

those waters increased the sum of knowledge in relation to that portion of the American coast.

Sir Francis Drake was with his kinsman Hawkins, in 1567, when they were overwhelmed by the Spanish fleet, and like him had his national antipathies influenced by the sense of personal loss. From 1570 to his death, in 1595, he did his utmost to spread havoc among the Spanish-American fleets, and was frequently successful. In 1572 he gained a view of the Pacific Ocean, from the Isthmus of Darien. In 1578 he sailed through the Straits of Magellan and plundered the coasts of Chili and Peru. He sailed north to 48° in the hope of finding the Northwest Passage on the Pacific side. Failing of that expedition, he returned to what is now San Francisco, which had been previously discovered by the Spaniards. He took possession of the country for the Queen of England and named it New Albion, and spent several weeks in friendly intercourse with the natives. He gives this account of his reception:

“When we landed they appeared to be greatly astonished, and showed us great respect, thinking that we were gods, and they received us with a great deal of reverence. As long as we remained on shore they came to see us, bringing us bunches of beautiful feathers of all colors, and sometimes tobacco, which the Indians regard as an herb, and make great use of. Before approaching us they would remain at some distance in a respectful attitude, then, making a long harangue according to their custom, they would lay down their bows and arrows, and approach, offering their presents. The first time they came they were accompanied by their women, who remained at some distance; but they commenced to scratch their cheeks and tear their flesh, making signs of lamentation, which was altogether inexplicable, but we afterward learned that it was a form of sacrifice or offering which they made to us.”

Leaving California, Drake crossed the Pacific to the Moluccas, and thence returned to England by the Cape of Good Hope, visiting many points, most of them previously discovered, and reached home, Nov. 3d, 1580, after an absence of nearly three years, being the

first English circumnavigator of the globe. He afterward took an active part in the defeat of the Spanish Armada, and in the English ravages on Spanish commerce in the West Indies. He was so engaged with Hawkins in the last voyage of both in 1595.

Thomas Cavendish, or Candish, was also engaged mainly in conflicts with the Spaniards on the sea; and in 1587, with three small ships fitted out at his own expense, he wrenched much plunder from the Spanish settlements on the Pacific coast of South America. The towns of Paraca, Cincha, Pisca, Paita, and the island of Puna, were made to disgorge over \$3,000,000. At Aguatalio he seized a Spanish galleon, or treasure-ship, with \$122,000 and other booty on board. He then proceeded to the Philippine Islands and returned home by the Cape of Good Hope, arriving at Plymouth, Sept. 9, 1588. He was the second Englishman to make the voyage around the world. In 1591 he set out again with five vessels, but failed in his efforts to replenish his wasted wealth, and died in 1593 before reaching the English coast. He is credited with having rendered some services to the sciences of geography and hydrography.



CHAPTER V.

DAVIS SENT OUT—TRADES WITH NATIVES OF GREENLAND—GREAT DANGER IN THE ICE—PASSES HUDSON'S BAY—RALEIGH IN SEARCH OF GOLD—DISAPPOINTMENT—CONFINED IN THE TOWER.

Notwithstanding previous disappointments—so tenacious is the public mind of an idea once ardently embraced—the London merchants could not entirely abandon the hope of finding a passage to Cathay. Once more, after a respite of seven years, several of them “cast in their adventure” and dispatched Captain John Davis, in 1585, with two ships, the Sunshine and the Moonshine, of fifty and thirty-five tons respectively. Though the El Dorado of Labrador had disappeared in the flumes of the assayer of Frobisher’s ore, there was yet no invincible demonstration that a Northwest Passage could not be found. They probably felt, as men have often felt before and since, that if they had not allowed themselves to be diverted from their original purpose by the gold mania of 1576–8, the route to China might have been laid bare, and the wares of the East brought to London by way of Labrador. It was worth another effort; and so they sent out Davis, a navigator of unquestioned ability; and with a refinement of thoughtful attention supposed to be foreign to the minds of mercenary traders, they furnished him with a band of music—the number and kind of instruments not stated—“to cheer and recreate the spirits of the natives.” Cunning traders, had they learned that to bewitch the natives with music was a good investment toward getting furs cheap?

July the 20th, forty-three days out, Davis discovered what he named the Land of Desolation, which is a much more appropriate designation than the misnomer Greenland, which it bears. In Gilbert Bay he traded advantageously with the natives, giving glass beads and other trinkets for valuable furs. A few days afterward, allured

doubtless by the music of the band so thoughtfully sent forward by their London sympathizers "to recreate their spirits," and of which the first lot of native traders had spread the fame far and near through the camps of the Esquimaux, no less than thirty-seven canoes surrounded the English ships. On the 6th of August they came in sight of a high mountain—the Sukkertoppen—and sailing still northwest they reached land at $66^{\circ} 40'$ free from "the pesters of ice, and ankered in a very fair rode." Davis thought he had reached the entrance to the sea which communicated with the Pacific Ocean. He explored the region of Cumberland Sound and the entrance to Frobisher and Hudson Straits, giving names to the Bay of Tatness, and to the Capes Dyer and Walsingham, and returned to England.

In 1586 Davis was put in command of four vessels—the two of the previous voyage, together with the "Mermaid" and the "North Star." On June 29, when fifty-three days out, he again reached Greenland, at 64° , whence he sent the "Sunshine" and "North Star" along the east coast to seek a passage farther north, while with the other two he proceeded to follow up his investigations of the previous year on the west side through the strait called after his name, advancing as far as 69° . The ice was found more massive than on the previous year. One great field was encountered in the middle of July which it took thirteen days to pass. The wind from off the ice so froze the ropes and sails that his men became discouraged and pathetically admonished him that "by his over-boldness he might cause their widows and fatherless children to give him bitter curses." He thereupon retraced his course, and after some further exploration of the region of Cumberland Sound and a conflict with the Esquimaux, in which three of his men were killed and two wounded, he returned to England, unsuccessful but hopeful. He wrote to a friend that he had reduced the discovery of the Northwest Passage almost to a certainty.

May 15, 1587, he left London with the "Sunshine," "Elizabeth," "Dartmouth" and "Helen," and arrived on the coast of Greenland, June 15th. This expedition was fitted out on the express condition that the expenses should be lightened by fishing whenever practicable.

For this purpose two of their vessels were left near the scene of their former explorations, while with the others he pushed forward in Baffin's Bay as far as $72^{\circ} 12'$, naming the highest point he reached Sanderson's Hope, in honor of his chief patron—falling short of the latitude of Upernavik about half of one degree. Again stopped by the ice and forced to go back, he made some further explorations lower down. He passed the entrance to Hudson Bay, and failing to find the two vessels at the appointed rendezvous, he returned to England whither they had preceded him. Though undaunted, and hopeful of final success, he could not secure an outfit for a fourth trial, and was compelled to relinquish the project. The results of his voyages were important geographically, but the English merchants were more affected by the financial aspects, as their ardor had been effectually chilled by six successive disappointments in twelve years.

VOYAGES OF RALEIGH.

It is not as the founder of the Roanoke Colony, in America, nor as soldier in France or Ireland, nor yet as a favorite of the Queen of England, or member of the British Parliament, nor even as one of the most renowned and remarkable men of his age, that Sir Walter Raleigh finds a place in this history of great navigators. His two voyages to Guiana and persevering attempts to find the El Dorado of the age, the fabled paradise of gold-seekers, entitle him to a place in the list.

On the 9th of February, 1595, Raleigh sailed from England with five ships and 100 soldiers, besides seamen, officers, and some gentlemen volunteers, on his first voyage to Guiana.

Arriving at Fastaventura in the Canaries, he took on board fresh supplies of water, and after a stay of four days, proceeded to Teneriffe, where he was met by one of his captains. Waiting eight days in vain for the appearance of Captain Brereton, he sailed for Trinidad, where he met Whiddon, another of his captains. De Berreo, Spanish commander of Trinidad, suspicious of the designs of Raleigh, forbade, under pain of death, all intercourse with the English. Raleigh landed under cover of night with 100 men, burned the town of St. Joseph, and took

Berreo, with some of the principal inhabitants, aboard his vessel as prisoners. He was here joined by two vessels of his squadron under command of Gifford and Knynin. They proceeded at once to the mouth of the Orinoco, and after passing through a number of islands at



SIR WALTER RALEIGH.

its mouth, ascended the river a distance of 400 miles. He failed to find Manoa, the city of gold and gems, unsurpassed in grandeur and magnificence, and in comparison with which, the riches of Mexico and Peru dwindled into insignificance. All this and more, Raleigh learned from his Spanish captives and Indian visitors. To which they kindly added—

it costs but little to enlarge, when one draws on his imagination for facts—that there was no winter at Manoa, and no sickness ; that the soil was excellent ; that there was abundance of game ; and that the songs of birds filled the air with a perpetual concert. The emperor of Manoa was, however, a mighty potentate, and Raleigh with his handful of men would be foolhardy to attempt to cope with him. His people were highly civilized and jealous of their immense treasures—within their territory there existed a mountain of gold—and it would be rash to attack them. Raleigh felt otherwise, and pressing his Indian informant to act as guide, he was astounded to learn from his lips that Manoa had been submerged and was then under water, as was no doubt the golden mountain. He might have added that it was the native version of the story of Atlantis, as paraphrased from what they had heard from the Spaniards or other visitors. Though Raleigh may not have believed all that he had been told, it is clear that these marvelous stories had their influence upon his imagination and judgment, for he says :

“Some may perhaps think that I am enthusiastic and visionary; but why should I have undertaken this enterprise if I was not convinced that this land of Guiana was a country abounding in gold? Whiddon and Milechappe, our surgeon, have brought me many precious stones which resemble sapphires. I have shown these stones to many people in Orinoco, who have assured me that there is a mountain full of them.”

He returned to England before the close of the year 1595, but through all the honors as well as trials which intervened between his first and second voyages, he does not seem to have lost the hope of making rich discoveries on the Orinoco. Upon his release from the Tower in 1615, after a confinement of thirteen years, we find him at once busying himself about an expedition to Guiana. He sailed in 1617 with thirteen vessels and a considerable body of men, for the expectation of great results ran high, and his personal popularity had been much increased through sympathy for his undeserved punishment. Arriving on the coast of Guiana, he dispatched an exploring party up the Orinoco. At St. Thomas they encountered the Spaniards and were driven back with

loss, among others that of the eldest and favorite son of Raleigh. Nor had they heard anything further of the sapphire or gold mountain, or of the city and people of Manoa. On their return, Raleigh sailed for Newfoundland to refit and revictual, purposing to renew the search, but his men mutinied and insisted on sailing back to England, where they arrived in July, 1618. Raleigh, broken in spirit and fortune, soon found that his English enemies were as unrelenting as his Spanish foes; and through their united efforts consent to his execution on the old sentence was obtained from the weakly compliant James I.



CHAPTER VI.

VOYAGES OF THE DUTCH—NORTHEAST PASSAGE AGAIN—BARENTZ REACHES ORANGE ISLANDS—GERRIT DE VEER—SICKNESS AND DEATH—SURROUNDED BY BEARS AND FOXES—REAPPEARANCE OF THE SUN—BURIAL OF BARENTZ—VOYAGE OF VAN NOORT—FIGHT WITH PATAGONIANS—DEFEAT THE SPANISH.

This brave, enterprising, and industrious people had scarcely succeeded in establishing their independence, when they began to turn their attention to the question of the age—another route to India. Indeed, that independence was not yet acknowledged by their late masters, and the formal recognition of the right of the Netherlands to a place in the family of nations, was stubbornly resisted by their oppressors until 1609. The narrow limits of the “Seven Provinces” naturally impelled them to seek a position among maritime States. And as the southern avenues to the coveted commerce of the East were controlled by Spain, they were driven, like the English, to search in northern latitudes for a route to China. Their first efforts were directed to the exploration of the Northeast Passage. And as a practical convenience toward the execution of that project, they proceeded to establish trading posts at Kola, in Lapland, and at Archangel, in Russia. The failure of the English to penetrate the Straits of Kara suggested the idea of going to the north of Nova Zembla, in which they were encouraged by the counsels and suggestions of Peter Plauçius, an adept in the nautical science of the day, as well as a distinguished theologian and astronomer.

THE NORTHEAST PASSAGE AGAIN.

In 1594 the merchants of Amsterdam, Enkhuyzen and Middelburg fitted out a squadron of three vessels to institute a search for the Northeast Passage. The command of these they gave to Cornelius Corne-

lizoon, Brant Ysbrantzoon, and Willem Barentz, of whom the last has become the most famous. They left the Texel on June 6th, with Barentz in command of the "Mercury." Having reached the coast of Lapland, they proceeded eastward toward Nova Zembla, where they divided. Barentz, keeping to the west of that island, struck toward the north; the other two continued in the same direction as before until they reached what they called Vaigats (Wind-hole) Strait, south of Kara Strait, from which it is separated by Vaigats Island. It was this Kara Strait that the English had found impassable by reason of the ice gorge which they there encountered. The Dutch, more fortunate in having gone farther south, and in experiencing a more favorable season, made their way through, though with the utmost difficulty.

Arriving at the eastern entrance of the strait, they saw to their great delight a fine expanse of blue open sea stretching to the horizon, now known as the Gulf of Kara. Finding, too, that the land to their right receded rapidly to the southeast, they felt triumphant. They had solved the great problem; the promontory they had just doubled could be no other than the famous Cape Tabis of Pliny, and but four hundred miles of sea separated them from Canton, in China. They did not know that they were distant from the northeastern point of Asia 120° , or one-third of the whole circumference of the globe. Entirely satisfied of the immense value of their discovery, they hastened back full of patriotic enthusiasm for the fame and profit of their young country, to enable the government to take proper measures for securing the fruits of their prodigious success. Meanwhile Barentz had doubled Cape Nassau and, July 10th, encountered great fields of ice, through which he fought his arduous way until he reached Orange Islands at the north of Nova Zembla, latitude 77° , early in August. He ascertained the latitudes of several points with rare precision for those days, and proceeded to make the homeward voyage. On his way he met his former companions on the coast of Lapland, and the disgusted Barentz, with the exultant Brant and Cornelius, returned together to the Texel.

The merchants of Rotterdam now combined with those of the three cities interested in the former venture, and together they fitted

out six vessels for a second voyage, laden with wares for the Eastern market. This squadron was placed under the supreme command of James Van Heemskerke, with Barentz as chief pilot. To it was added a yacht, the sole duty of which was to serve as a dispatch boat to bring back the tidings that the fleet had safely entered the Gulf of Kara. But merchants and voyagers were doomed to disappointment. The Vaigats Strait was found impassable, being blocked by huge masses of ice which defied the continued efforts of the determined mariners. Finding that the impossible would not yield to their wishes or exertions, they sadly retraced their course, and arrived in the Texel, Sept. 18, 1595, with feelings quite different from their predecessors' of the previous year.

Yet another trial was decided upon, and May 16, 1596, two vessels were sent out under command of Heemskerke and John Cornelizoon Rijp or Ryp, with Barentz again as pilot, and Gerrit de Veer, who became the historian of the voyage, as mate. Passing the Shetland and Faroe Islands, they encountered ice on the 5th of June before reaching Bear Island, where they landed on the 11th, and which they so named because there they had found and killed a bear. On the 19th they discovered the land which they named Spitzbergen, and which they supposed was a part of Greenland. They explored the west coast for a considerable distance to the north, but were compelled by the ice to fall back on Bear Island. Here the vessels separated, Heemskerke and Barentz slowly making their way through the ice toward Nova Zembla, having heard that from the highest points of Orange Island the open sea had been seen to the southeast.

On the 16th of July they reached the west coast of Nova Zembla, then known to western navigators as Willoughby's Island. Proceeding northward they doubled Cape Nassau on the 6th of August, and the Orange Islands some days later. Having reached the same latitude previously attained by Barentz in his first voyage, they were compelled by the ice to turn south on the eastern coast, where they soon became ice-locked in a small harbor, latitude $75^{\circ} 43'$, in which they had taken refuge. "The cakes of ice," says De Veer, "began to pile up

ROCK SONG AS SING BY PAULINE.



around the ship on all sides, and pressed against it so closely, that it commenced to crack and give way, and it seemed as if the vessel would break into a thousand pieces ; and when the ice moved it pushed and raised the ship as if some huge machine were elevating it in the air."

Giving up all hope of extracting themselves from the ice, they proceeded to effect a landing, and transport provisions on shore for a winter's sojourn in that inhospitable region. A few days later some of the men discovered a river some nine miles in the interior, on which they found floating a considerable quantity of wood. They also found tracks of the bear and the saiga, a species of antelope. A quantity of driftwood, probably from Siberia, was found on the shore, and they were enabled to build a warm cabin, large enough to hold them all, besides having abundant firewood, "for all that cold winter, which we knew," says De Veer, "would fall out to be extremely bitter." They were seventeen in number, and under wise, careful and competent leadership.

By the 23d of September the ground had frozen so hard that they could not dig a grave for their deceased comrade, the carpenter, who, though he would have been specially useful in the construction of their winter quarters, was the first to succumb to the rigor of the climate. They buried him in a cleft in the rocks. On the 2d of October their house was completed, some of the ship's furniture being used in its construction. As they grew apprehensive that the vessel would soon go to pieces, they began to sleep ashore on the 12th of October ; and soon after they carried ashore everything that could be of use to them. They began immediately to reduce the daily rations, fearing their supplies would not hold out. A chimney was erected reaching to the top of the house, and a place was reserved near the central fire-place for a sick comrade. On broad shelves, or bunks around the walls, they placed their beds, and from a large cask they extemporized a bath tub, the surgeon insisting on cleanliness as absolutely necessary to the preservation of health. The sun soon disappeared entirely, and they had fairly entered on the long and dreary winter. "We looked pitifully one upon the other," says De Veer, "being in great fear that if the extremity of cold grew to be more

and more, we should all die there of cold, for that what fire soever we made, would not warm us."

A Dutch clock transferred from the ship helped to remind them of home, as well as to mark the slow march of time. The house was soon covered with snow several feet deep, and to get out they had to tunnel a pathway. During one period of adverse winds for four days the fire would not burn, and the ice grew two inches thick on the sides of their bunks, while their clothes were thickly covered with frost. In a short time they began to be surrounded by bears and foxes, who threatened to tear the roof off the house; and the foxes learned to climb down the chimney. They trapped several of these, and shot some bears, the skins of both proving a great help in warding off the intense cold. They used the flesh of the foxes for food, but through some unaccountable prejudice they failed to utilize the more valuable bear's-meat, which would have been a great preventive of the scurvy, from which they suffered.

Early in December a violent storm arose, blowing from the northeast and producing intense cold, when they made a great fire of coal, which they brought from the vessel. Closing every crevice, and even the chimney, to retain the genial warmth, they soon began to complain of dizziness, whereupon one ran to open the door and another the chimney, when they recovered. Notwithstanding their constant privations, and often intense sufferings in exceptional weather, they labored to maintain a cheerful spirit. On January the 5th (1597), the eve of Twelfth Night, a feast long celebrated throughout all parts of Europe, they proposed to have a little merriment suitable to the occasion. "We prayed our Master," says De Veer, "that we might be merry, and said that we were content to spend some of the wine that night which we had spared, and which was our share (half a pint) every second day, and whereof for certain days we had not drunk. And so that night we made merry, and drew lots for king. And thereof we had two pounds of meal, whereof we made pancakes with oil, and every man had a white buiscuit, which we sopt in the wine. And so supposing that we were in our own country, and amongst our friends, it comforted us as well as if we had made

a great banquet in our own house. And we also made trinkets, and our gunner was made king of Novaya Zemlya, which is at least 800 miles long, and lyeth between two seas."

January 24th the sun reappeared, and though they lost, the same day, one of their number who had been ill all winter, their hopes rose higher; and on the 28th, the day being fine, they played a game of ball in the bracing northern air. Early in March the ice began to move, but they could not yet leave their quarters. April 15th they visited the ship, which they found in better condition than they had anticipated. May 1st the men thought they might leave, but the more experienced Barentz declared they would have to wait a month, as the vessel could not be liberated sooner; and that it was doubtful whether she would be found seaworthy. In the event of her proving unsafe he promised that they would rig out the two boats for the homeward voyage. On the 20th, becoming satisfied that the ship must be abandoned, they began with a will to get the boats in readiness. It was, however, the middle of June before they took leave of their late residence, and, doubtless not without misgivings, trusted themselves to their frail crafts for so long a voyage. Barentz inclosed a record of their mishap in a gun barrel, which he fastened to the chimney, that should a search party be sent, they might learn their fate. They proceeded by the way they had come and in a short time reached Orange Island.

In the interval, and when only four days out, the boats got hemmed in by enormous blocks of ice, and giving themselves up for lost, they silently took leave of each other. But De Veer, with the instinct of self-preservation, taking the end of a strong rope in his hand, clambered from block to block until he reached a large floe, on which they succeeded in getting first the sick, then the stores, and finally the two boats safely landed—a feat often performed since, but for those days of inexperience it can be regarded as nothing less than a brilliant stroke of genius. The boats had been badly nipped, and they repaired them as well as they could on the ice floe. Here it was that Barentz, and one of the sailors, Nicholas Andrien, died. On the 20th of June, while floating northward with the ice, on the west coast of Nova Zembla, the worthy pilot closed the voyage of his life, dying

very unexpectedly to the men, though apparently not to himself. "The death of William Barentz made us all feel very sad, seeing that he was our principal guide and pilot, and one in whom we had every confidence. But we could not resist the will of God, and this thought made us calm," says the faithful chronicler.

After committing the remains of Barentz to the deep, and frequently baling their repaired boats to keep them from sinking, they succeeded in reaching Cape Nassau. Hauling the larger boat ashore for repairs, she was upset, and they lost nearly all their provisions and came very near losing their lives. On the 19th of July they again put to sea, and on the 28th they had reached the southern point of the island. In the open sea beyond the boats became separated in a fog, and did not again meet until they reached Cape Kanine, at the entrance to the White Sea. Meanwhile, their scanty stores had been supplemented from time to time by the kindness of Russian fishermen with whom they chanced to fall in. This, with rigid self-denial in the use of what remained of their original stock, prevented them from dying of starvation. They now learned that at Kola they would find three vessels of their country getting ready to return to Holland.

Sending one of their number across the gulf with a Lapp guide, he returned in three days with a letter signed John C. Rijp, the commander of the second ship, from which they had become separated thirteen months before. Sept. 30, Rijp followed with a boat-load of provisions, and conveyed his countrymen to Kola, and thence to Amsterdam. They had been 104 days in performing the trip from their winter quarters to Cape Kanine. Four of the seventeen had died; the thirteen survivors were welcomed home with much enthusiasm, and entertained at the expense of the city until they had received the money that was due them. Ten years later, in 1607, Heemskerke received the command of a fleet of twenty-six vessels, and lost his life in a naval battle with the Spaniards.

VOYAGE OF VAN NOORT.

On the 2d of July, 1598, Oliver Van Noort, a young but experienced navigator, left Amsterdam with two ships, two yachts and

248 men. The second in command was James Claaz d'Ulpenda, and an able English seaman named Melis, was pilot. The Northwest Passage had been sought in vain by the English, and the Northeast one by both English and Dutch, with substantially the same result. For, although a route had been discovered, it proved impracticable or uncertain on account of the ice blockade to which it was subject. It became necessary then to abandon all hope of share in the profitable traffic with the East, or else break up the Spanish monopoly of the southern route by the Cape of Good Hope.

The latter alternative was chosen, and Van Noort, with his little band of 248 men, undertook to fight his way to the Spice Islands, if he could not succeed in eluding the watchfulness of his enemies. Knowing that the route by the Straits of Magellan was the least frequented by the Spaniards, he determined on pursuing that course. After touching at Goree, they landed on Prince's Island, on the Gulf of Guinea, where they lost twenty-one men including the pilot and a brother of Van Noort, at the hands of the Portuguese. They discovered Annobon Island on Jan. 5, 1599, and sailed thence for the coast of Brazil. Driven off by the hostile Portuguese and natives with the loss of seven men, they reached a small island off the coast, where they found fresh provisions and water, of which they were much in need. The admiral's ship was injured by being driven on the rocky coast of the Island of Santa Clara, and one of the yachts was abandoned for want of men. Noort also lost one of his captains, who was buried at Port Desire. Here they were attacked by the Patagonians, losing some men, but wreaking a terrible revenge; they annihilated the whole tribe. This was but a few days before the close of the year 1599. Some weeks later they lost one of the two larger vessels in a storm, and the squadron was reduced to the flag-ship and one yacht.

But now their fortunes began to mend. They were kindly received by the natives of some islands on the Pacific coast which they had reached through the Straits of Magellan. The rich settlements of the Spaniards in Chili and Peru afforded opportunities for plunder of which Noort and his men were not slow to avail themselves. In those days English and Dutch

as well as Spaniards and Portuguese, were guilty of cruelties and outrages on non-combatants and their defenseless cities, which would now send a thrill of horror throughout the civilized world. Their own men too, on the slightest presumption of insubordination or discontent, were treated with a barbarism equally inhuman. They nailed them by their hands to the masts, abandoned them on desert islands, or—most humane of all the penalties known to that bloody period—put them to death.

It was about the middle of September, 1600, when they bore away from the American coast to cross the Pacific. They reached the Philippine Islands, Oct. 14, where they took vengeance on the Portuguese for the slaughter of their comrades. But they were swayed more by a spirit of cruelty and rapacity than of retribution for injuries received, for even the Chinese junks which they encountered in these eastern waters shared the same fate as the ships and settlements of their western enemies, the Spaniards and Portuguese. In truth, the authorized naval forces of those days were but little better than freebooters and pirates, and often fell below the standard of the outlawed buccaneers. Finally the Dutch fell in with two Spanish ships which gave them battle. In this engagement they lost five men killed, and twenty-five taken prisoners, and about as many wounded. They also lost one of their ships; but the Spaniards lost two hundred men, and their flag-ship took fire and was destroyed. Noort, now in command of only a single vessel, had the peculiar good fortune to fall in with a rich prize, a vessel of the enemy laden with a valuable cargo of spices which he captured in the waters of Borneo. He made all haste to reach home by the Cape of Good Hope, and arrived at Rotterdam, Aug. 26, 1601, after a voyage of over three years. He was the first of his country to circumnavigate the world; and his last piece of success reimbursed his patrons for the outlay incurred. But what was of more importance he had shown his countrymen that the Spaniards were not more invincible on the ocean than they had already found them on the land. The history of this voyage was published the following year, and attracted so much attention that it was translated into several languages. Van Noort survived his return at least ten years, being on record as late as 1611.

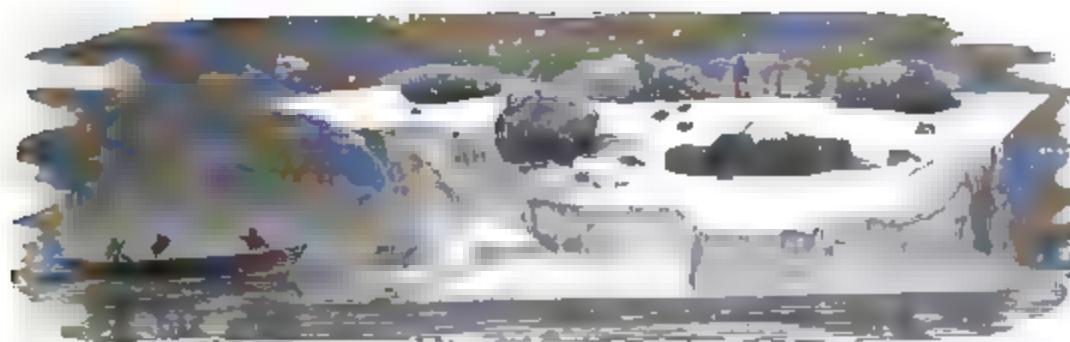
But, although this famous voyage attracted the attention of the world, and won great credit for Van Noort among his countrymen for the skill and courage he had displayed, it was of little commercial advantage. Almost simultaneously with Van Noort's expedition, a squadron of five ships, fitted out mainly at the expense of the merchant Verhagen, left Rotterdam under the command of James Mahu, with the famous Englishman, William Adams, as pilot, and Sebald de Weert as captain of one of the vessels. They lingered too long on the African coast, losing Mahu and some of the crews. Reaching the Straits of Magellan they were detained therein five months by adverse winds, and suffered much from scarcity of provisions, and the severity of the climate. They were reduced to the necessity of eating raw herbs and shell-fish, which produced disease, and added to their misery. Some of the ships finally effected a passage into the Pacific, but were dispersed in a storm. Adams succeeded in reaching Japan in one of these vessels, with only five men able to work on their arrival. His fortune, and that of his companions in Japan, possesses much interest, but is foreign to the scope of this work. Sebald de Weert, detained in the strait four months longer, where, too, Van Noort passed him by without rendering any assistance, finally effected his escape into the Atlantic, and discovered the islands now known as the Falkland, but which he named the Sebaldine. After a tedious voyage homeward he reached the Meuse some time in the year 1600, with only thirty-five men out of a crew of one hundred and five. This expedition, or the part of it which arrived in Japan, led to the supplanting of the Portuguese by the Dutch in the lucrative trade with that country.





PART II.

EARLY ARCTIC VOYAGES.



*“Up! up! let us a voyage take!
Why sit we here at ease?
Find us a vessel tight and strong,
Bound for the northern seas.
There shall we see the fierce white bear;
The sleepy seals aground,
And the spouting whales that to and fro
Sail with a dreary sound.”*

—HOWITT.

CHAPTER VII.

**FIRST ARCTIC VOYAGE UNDER BENNET—KILL MANY WALRUSES—
WALRUSES BROUGHT TO ENGLAND—VOYAGE OF KNIGHT IN THE
HOPEWELL—ATTACKED BY SAVAGES—VOYAGES OF HUDSON—
FOURTH AND LAST VOYAGE OF HUDSON.**

In 1602 the English renewed their attempts to find the Northwest Passage, the search for which had been abandoned after the last voyage of Davis in 1587. Capt. Weymouth was intrusted with the new venture. Passing through Hudson's Strait, he reached the entrance to Hudson's Bay without disaster; but was driven back by a violent storm and returned without achieving any definite result.

Distinctively Arctic voyages under English auspices began with the first voyage of Steven Bennet, in 1603. He sailed with one small vessel, the "Godspeed," fitted out at the expense of "the worshipful Francis Cherie," and laden with a cargo which he was instructed to dispose of at Kola, the Dutch trading post in the north of Lapland. After selling his goods he was to proceed to the Arctic Ocean on a voyage of discovery. Bennet complied with his instructions in both particulars. On his voyage from Kola northward he re-discovered the island which Barentz had discovered nine years before, and called Bear Island. Here Bennet found foxes, but no inhabitants, and named the island Cherry Island. He determined its latitude to be $74^{\circ} 30'$. He made a second voyage thither in 1604, and found it covered with wild fowl and sea-horses or walruses. The teeth of the latter were a valuable article of commerce, and Bennet's crew endeavored to secure a return cargo of them. They cruelly blinded the animals with small shot, and then attempted to kill them with hatchets. But their cruelty did not avail them much, for out of a thousand which they maimed, they killed only fifteen. In 1605, being better equipped, they succeeded not only in get-

ting a cargo of teeth, but in boiling the blubber into oil. In 1606, Bennet collected in a fortnight three hogsheads of teeth and twenty-two barrels of oil. In 1608, he was again on Cherry Island, and in seven hours he and his companions killed 1,000 walruses. A couple were brought alive to England, and the male was exhibited at court, “where the king and many honorable personages beheld it with admiration for the strangeness of the same, the like whereof had never before been seen in England. Not long after it fell sick and died. As the beast in shape is very strange, so it is of strange docility, and apt to be taught, as by good experience we often proved.”

The weather at Cherry Island at the end of June, was reported to be calm and clear, and about as warm as in England at the same time of year. Three lead mines were discovered; and in 1609 five English ships were there at one time, with crews numbering 182 men, all loading with furs, oil and walrus teeth.

Meanwhile, John Knight had been sent out by the Muscovy Company, April 18, 1606, in command of the “Hopewell” of 40 tons, to resume the search for the Northwest Passage. He had previously commanded a Danish vessel on a voyage to Greenland, and was a brave and experienced seaman. Detained for a fortnight in Pentland Firth, he struck across the Atlantic on a due west course, May 12, and about the middle of June found himself on the coast of Labrador. Here he encountered stormy weather, with a north wind which brought down upon him huge masses of ice. The ship was soon surrounded with it, and her rudder was carried away. Her hull also had been severely nipped, and Capt. Knight was fain to take refuge in the first inlet, to overhaul his ship and examine the stores and provisions.

His first chance not proving satisfactory, he crossed the inlet on the next day, the 26th of June, with his brother and one of the crew. They were seen to ascend a small hill not far from the shore, and before passing to the other side they waved their hats as a parting salutation. Disappearing on the other side, the boatmen waited on the shore for their return. The day wore on, the sun went down, and evening darkened into night without bringing any sign of their return. The men fired off their

muskets, shouted long and loudly, and blew their trumpets, but no answer came. Disheartened and alarmed they pulled back to the ship with the sad news that the commander and his companions were doubtless lost. To add to their mishap the night grew excessively cold, and all their efforts to reach the shore next morning proved unavailing. Ice hemmed them in on every side, and despite their anxiety to go to the relief of the missing, the most sanguine were compelled to yield to the impossible, and leave the absent to their own resources. After two days of this painful uncertainty, rendered doubly dreary by their apprehensions for the safety of their friends, the knowledge of their fate came to them.

On the night of June 28 they were themselves attacked by the savages, to the number of perhaps fifty, who appeared determined to make them share the same fate. They were only eight, but they made up their minds, if die they must, to sell their lives dearly. With a large mastiff, the companion of their voyage, in front, they attacked the fierce savages, and soon dispersed them. The volley of musketry created havoc in their ranks as well as a superstitious dread, and they fled to their canoes and made off in hot haste. They got entangled in the ice-floe, and were long in getting beyond range of the muskets, and as volley after volley from the weapons of the besieged struck them, cries, groans and lamentations rent the air, and made the night hideous. They were small of stature, of a tawny color, and slightly built, with little or no beard, and flat noses. Dreading the return of the savages in increased numbers, the Englishmen preferred to trust their lives to the ice-covered sea in their disabled ship rather than take the chances of a second onslaught from the barbarous savages, whom they suspected of adding cannibalism to their other atrocities. Without a rudder, and kept constantly at the pumps for three weeks, they reached the island of Fogo on the northeast coast of Newfoundland, July 23, aided chiefly by the current and their exertions at the oars. Here they were assisted by the fishermen, and after a delay of four weeks spent in repairing the vessel, they set sail for England, where they arrived in safety on the 24th of September of the same year.

VOYAGES OF HUDSON.

In 1607 Henry Hudson sailed from England in command of one small vessel with ten sailors, furnished by some merchants of London, to search once more for a route to China. This time it was neither the Northwest nor Northeast Passage that was to be sought, but an entirely new route by the North Pole. This was therefore THE FIRST POLAR VOYAGE, properly so called; and, like the preceding ones by the other routes, was projected in the interests of commerce. The plan had been suggested eighty years before by Robert Thorne, who may therefore be

regarded as the first visionary who indulged in uttered dreams of reaching the Pole. It remained in abeyance while repeated efforts were put forth to find the desired route through more southern and less forbidding waters. Whether now revived by Hudson or his patrons is not known, but he was intrusted with its execution. He soon reached latitude 73° on the east coast of Greenland, and proceeded thence to the northern



HENRY HUDSON.

point of Spitzbergen, in latitude 80° . Despite his most strenuous efforts to push forward to the Pole, he could only reach $81^{\circ} 30'$, his further passage being blocked by the ice. He returned to England, with the conviction, often shared by many since his time, that the passage to the Pole was forever made impassable by the ice.

In 1608 he made a second voyage, followed by Barentz—an intermediate route between what might be called the North Passage of the preceding year, and the Northeast Passage by the Straits of Vaigats. He reached Nova Zembla and went as high as $72^{\circ} 25'$, but was again driven back by the ice. In 1609, in the service of the Dutch East India Company, he tried the Northeast Passage and was again baffled by the ice.

He gave up all hope that that route could ever be made available for the purposes of commerce, and proceeded at once in the opposite direction, aiming to make Davis' Strait and search for the Northwest Passage. Striking the western continent in the region of Nova Scotia, he sailed to



VIEW OF THE HUDSON.

the south and explored the coast to Chesapeake Bay, hoping perhaps to find a West Passage to the Pacific. Retracing his course, he had the good fortune to discover the island of Manhattan, now New York, and the important river which now bears his name. He explored the Hud-

son almost to the site of the present city of Albany, and took possession of the country in the name of the Netherlands.

THE FOURTH AND LAST VOYAGE OF HUDSON.

Almost simultaneously with Hudson's first voyage of discovery to Arctic seas, in 1607, under the auspices of the Muscovy Company, two voyages of colonization to the coasts of the North American continent, were undertaken at the expense of two other English companies, the London and the Plymouth. May 13, 1607, twelve days after the departure of Hudson, a squadron of three vessels, under the command of Christopher Newport, was sent out to Virginia. There were 105 colonists; and these founded amid great suffering and despite much disunion, the first permanent English settlement in America, at Jamestown. Among them were Bartholomew Gosnold, who had sought to establish a colony, in 1602, in the vicinity of Cape Cod, but failed; and John Smith, who explored Virginia and Chesapeake Bay, and the coast of New England, some years later, in 1614.

The second English colony of the year 1607 was the Kennebec colony, on the coast of Maine, which was sent out under the command of George Popham, three months later, in August. They were forty-nine in number, and failing to find the mines, which were the primary object of their venture, they returned to England in 1608. The French also had made several voyages of colonization, and in 1608 founded Quebec. But we cannot turn aside to record the numerous voyages of this sort that soon became an almost everyday occurrence; and we must return to our subject. On the 17th of April, 1610, Hudson left London for his last voyage. His ship was named the Discovery, of but fifty-five tons burden, and provisioned for only six months. In all but the skill, courage and experience of Hudson, this expedition lacked the chief elements of success. It was specially unfortunate in the crew selected who, as the sequel showed, were utterly unworthy of their brave commander. On the 1st of May they left Harwich on the southern coast of England, and sailed for the Shetland and Faroe Islands. Leaving these behind, they sighted Iceland on the 11th, and being en-

veloped in a fog, and in danger of running on the rocks, they cast anchor.

When the fog lifted they proceeded along the coast until they reached Westmanna Islands. They saw the Jökull, the Snaefell, and grandest of all, Hecla, the noted volcano, in the blaze of an eruption, and landing farther on, they bathed in one of the outflows of the great geyser, which they found hot enough to boil a fowl. Leaving Iceland, they reached the east coast of Greenland in four days, and found it lined with a barrier of ice. "This day," says Hudson, "we saw Greenland perfectly, over the ice; and this night the sun went down due north, and rose north-northeast, so plying the fifth day, we were in 65°." Turning Cape Farewell, and running toward Davis' Strait, they encountered a large number of whales in the vicinity of Cape Desolation. They now proceeded west-northwest, and at the end of June discovered Resolution Island. Proceeding through the strait that bears his name, and driven by turns to all the points of the compass to escape the icebergs, Hudson discovered and named several islands and capes. Sailing around, buffeted by storms and ice floe, and threatened with destruction from icebergs which were never out of sight, and landing occasionally on an island or promontory, he reached the entrance to the great bay that was destined—with the river and strait previously discovered—to preserve his name. This sea, as it proved to be, he called Michaelmas Bay, because discovered on the feast of St. Michael, the 29th of September. It has since been named Hudson, in his honor.

With equal modesty he had called this discovery of the previous year, the great North River, through which he had vainly hoped to reach the Pacific, the River of the Mountains.

Beclouded by fogs, stranded on shoals, or lodged on shelving rocks, the ship made slow progress, and was fast becoming leaky and unsafe. The nights were long and cold, and the ground was covered with snow. Giving up all intention of retracing his course, doubtless in the hope of finding the coveted Northwest Passage in the spring, Hudson now prepared to go into winter quarters. November first they found a suitable place to haul the vessel ashore, and by the tenth they were frozen in.

On examination, the provisions were found so nearly exhausted, notwithstanding the occasional slight assistance derived from hunting, that it became necessary to put the men on short rations. A reward for every addition to their supplies was offered by the commander in the hope of stimulating the men to extraordinary exertions in hunting. The alternative of making an effort to escape before they had been completely hemmed in seems to have been the choice of the greater portion of his crew, and his adverse decision irritated them.

About the middle of November the gunner died, and the malcontents attributed his untimely end to the severity of the commander. Being filled with the sublime anticipation that in this broad, expanded sea, was to be found the outlet so long desired and so patiently sought for more than a century by the chief navigators of Europe, may have rendered Hudson somewhat insensible to the more commonplace aspirations of his subordinates, who in the midst of such dreary surroundings could not help longing for the sight of home. And they felt that if there was now but little chance of their ever enjoying that gratification, it was all due to the perverse obstinacy of their commander. They might ere this have been safely under cover of their respective roofs in Merrie England, instead of facing death by starvation on the dreary shores of this inhospitable land, had he yielded to their suggestions four months earlier.

When they had passed through Hudson Strait and entered the great sea in August, most of them believed that the coveted passage and South Sea had alike been found. Three months were wasted, as they felt, in explorations which should have been left for the next season's work, and the six months for which they had undertaken service would have expired by the time they arrived in England. The reasoning was specious, but defective. It ignored the fundamental principle of associated action. Executive authority may rightly be counseled or even remonstrated with, but must not be contravened under penalty of disaster. The smoldering fires of discontent burned secretly through the winter, ready at any moment to break into inextinguishable flame by the fanning of any fresh breeze of disaffection which might arise. Meanwhile, they had been able to subsist

fairly well on their scant stores and the proceeds of their hunting. They killed a number of wild fowls—100 dozen of “white partridges” alone—and were their minds not diseased by the taint of mutiny they would have acknowledged that the commander was not without reasonable grounds for his action. Indeed, it is highly probable that he had hoped to reach the genial clime of China before the season was over; and when he found no outlet to the south or west from the bay, he merely resigned himself to the inevitable. The hope of success had held him captive until it was too late to get out. It was an untoward mishap, and led to his untimely and undeserved fate—an error of judgment for which he should not have been held responsible.

In the spring they were visited by the savages who traded valuable furs for knives, buttons and trinkets, but who unfortunately had no surplus provisions to barter. On the breaking-up of the ice eight men were detailed to catch fish, in which they had some success, affording temporary but precarious relief. It is supposed that the conspiracy against the commander was distinctly formulated on that occasion. He took another boat and attempted to open communication with the natives where he had seen fires occasionally during the winter, in the hope of replenishing his stores from what he conceived were permanent settlements. But he failed to find any, and determined to leave James Bay. The stock of provisions was almost exhausted, and after being on short allowance during the whole winter, actual starvation now threatened them. On the eve of resuming the voyage with the purpose of returning to England by the way they had come, Hudson doled out what remained of the provisions brought from home—a loaf of bread for each, and five cheeses, equally divided among them. Eighty small fishes were taken soon after ; and with strict self-denial they might, it is said, have lived on these short rations for two weeks. How short they were is shown by the statement that in one day the boatswain consumed his whole allowance, with the usual penalty for such excess when following on the heels of continued privation, that he was sick for several days in consequence.

The spring had passed, and they had fairly entered on their second

summer; when, on the 21st of June, three of the disaffected suddenly pounced upon Hudson as he came on deck, and securely bound him. With his son John, and the sick, six in number, and the carpenter, sturdy John King, whom they were unable to enlist in their wicked scheme, the gallant commander of the "Discovery," the immortal Hudson, was thrust into the ship's boat, which was cut adrift, and left to shift for itself. The mutineers then stood to sea, steering to the eastward from their late winter quarters. In a few days they ran into the ice in a storm, and were held fast fourteen days. It was probably in this storm that Hudson and his companions were lost, as they were never afterward seen or heard from. So perished toward the close of June, 1611, Henry Hudson, one of the most able and distinguished navigators of any age. With very inadequate resources his great talents secured the highest results. One after another he tried the several proposed passages to China, and his clear judgment pronounced them all impracticable, at least for commerce. He searched the Atlantic coast from the Chesapeake to Greenland, and satisfied himself that there remained but one chance for reaching the Pacific by the Northwest, namely, by the open sea south of Greenland. He probably died in the conviction that Hudson's Bay was not the opening sought, and had he not been cut off by the treachery of his men, he might after one or two more voyages have anticipated McClure's discovery by over two hundred years.

By the 27th of July the ship had reached the entrance of the Bay, and on the 28th some of the men landed to shoot fowl. On making the land at Cape Dudley Diggs—so named the year before by Hudson in honor of one of the patrons of the expedition, as was Cape Wolstenholme for another—they encountered some natives bound on the same errand, with whom they trafficked peaceably. The next day, however, when, unsuspecting of danger they resumed the intercourse, they were attacked by the natives, and four out of the six engaged in the enterprise were either killed outright or died within a few days, of their wounds. Others of the mutineers died on the homeward voyage, and all suffered dreadful privations. They finally reached Bere Haven, in Bantry Bay, on the southwest coast of Ireland, whence, with the help

of fresh seamen to work the ship, they were enabled to reach England. Habbakuk Pricket, who wrote an account of the voyage, and Robert Billet or Bylot, mate and acting master of the vessel on her arrival, were the only ones who presented themselves before the authorities, the other survivors slinking away into obscurity.



CHAPTER VIII.

VOYAGES OF POOLE—BISCAYAN WHALE FISHERS—BUTTON IN SEARCH OF HUDSON—HALL'S VOYAGE TO GREENLAND—COMMERCIAL VOYAGE UNDER BAFFIN—FOTHERBY—BYLOT—DISCOVERY OF BAFFIN'S BAY.

In 1610, 1611, and 1612, Jonas Poole, in the employ of the Muscovy Company, made three distinct voyages to the Arctic regions, or Northern Ocean. Like four others of the same class by Steven Bennet, 1603–8, they were all divested of any strong claim to scientific or geographical voyages, though projected in part for that purpose, mainly, no doubt, by the force of circumstances. On their arrival in those waters the commanders found very little to discover or explore. Seeing no avenue to new discoveries in the wide waste of water studded with icebergs instead of islands, they are not to be blamed, if, deeming it of more advantage to return laden than empty, they turned their attention to the hunting of seals and walruses on the coasts already discovered, especially on Cherry Island, the Bear Island of Barentz, of which the Muscovy Company took formal and exclusive possession in 1609. In his first voyage as commander, in 1610, Poole went as high as 78° , and in his report emphasized the observation of some of his predecessors that the climate in the open sea toward the Pole is more temperate than in lower latitudes. “A passage,” he says, “may be as soon attained this way by the Pole as any unknown way whatsoever, by reason the sun doth give a great heat in this climate, and the ice that freezeth here is nothing so huge as I have seen in 73° . ”

He finally reached $79^{\circ} 50'$ on this trip which was intended not only to “catch a whale or two” but also for northern discovery. These were his instructions: “Inasmuch as it hath pleased Almighty God, through the industry of yourself and others, to discover

unto our nation a land lying in eighty degrees toward the North Pole; we are desirous not only to discover farther to the northward along the said land, to find whether the same be an island or a main, and which way the same doth trend, either to the eastward or to the westward of the pole; as also whether the same be inhabited by any people, or whether there be an open sea farther north than hath been already discovered," etc.

In 1611 Poole again proceeded to the Arctic in company with the first English ship expressly intended for whaling. Six Biscayans of experience in killing whales were added to the crew. Leaving the whaler at work, Poole proceeded northward to 80° , and then crossing westward, he explored the east coast of Greenland to a point about two degrees north of any previously reached, or at least noted on the charts. On his return to the whaler, he found that, with the aid of the Biscayan experts, they had caught thirteen, and they proceeded together to England.

In his voyage of 1612-13, Poole found no less than twenty whalers—six of them English, and one of these in command of the afterward celebrated William Baffin—in the sea of Spitzbergen. French, Biscayan, Spanish and Dutch were all represented; and all quietly submitted to the orders of the English, who took exclusive possession of the island and contiguous sea for the crown of England, in 1613.

BUTTON IN SEARCH OF HUDSON.

The first voyage in search of a lost explorer was undertaken, in 1612, by Sir Thomas Button. He was accompanied by Pricket, the historian of Hudson's last voyage, and Bylot, who had served on the same voyage, as mate. Button was placed in command of two vessels, the Resolution and Discovery. He followed the route pursued by Hudson through the strait till he reached Southampton Island. Sailing west he fell in with the main land at $60^{\circ} 40'$, to which part of the west coast of Hudson's Bay he gave the name of Hopes Checked. He then sailed toward the south and discovered the bay called after his name. Farther south, at $57^{\circ} 10'$, he discovered Nelson River, on the 15th of August.

Here, near the point of York Factory, long the chief center of the Hudson's Bay Company's fur trade, he made his preparations to winter. Some of the crew died from the intensity of the cold. In spring they were able to kill a plentiful supply of game, especially of "white partridge," of which no less than 1800 dozen are said to have been taken and consumed by the crews of the two vessels.

In April, the ice disappearing early, he sailed northward along the west coast, discovering what are now called Mansfield's Islands, in 65°. He then proceeded homeward, and arrived in England in the autumn, in thirteen days, from Cape Chudleigh, without having found any trace whatever of the lost navigator. He carried with him a conviction, but on what based is not stated, that the Northwest Passage would be found leading from Hudson's Bay. The influence of his name did much toward holding his countrymen in the trammels of this error for generations. As will be seen presently, a navigator of more experience, but less influence, attempted to correct the mistake a few years later; but public opinion was swayed by the authority of a great name, and England chose to err with Button rather than to be set right by Bylot. Such things happen yet, and in America as well as elsewhere. "The influential" still carry weight, not only as they should in matters of which they are fully cognizant, and qualified to pronounce upon, but also in matters entirely foreign to their line of thought and experience. Herein lies the mistake of the public, "ravished with the whistling of a name." The world has been long held in the thraldom of various errors by the authority of great names, forgetting that one cannot mention a single delusion in the history of humanity for which the authority of some great man may not be quoted.

HALL, BAFFIN, GIBBONS AND FOTHERBY.

In 1612, also, Capt. James Hall, with William Baffin as pilot, in the service of the Muscovy Company, made a voyage to Greenland. Hall had previously served as pilot to a Danish exploring expedition of three vessels, which had been sent to Greenland in 1605, to search for the old Norse colonists in that quarter. On that occasion he had reached

latitude 69°, but the crews refused to proceed farther, and in 1606 he had also served as pilot to another Danish squadron of four vessels, which were dispatched in search of gold and silver mines in Greenland. At Cunningham's Ford they "landed to see the silver mine, where it was decreed," says Hall, "we should take in as much as we could." They kidnapped five natives from a settlement they found on the banks of the river in 66° 25', and took them to Denmark. In 1607 he was compelled, by a mutiny of his Danish crew, to return, unsuccessful, from his third voyage to Greenland, under Danish auspices. He then seems to have returned to his native country, but did not come into notice again as an Arctic navigator until 1612. On that ill fated voyage, having landed at 66° 25', the scene of the kidnapping venture in 1606, he was recognized by one of the natives, who flew at him and wounded him with his lance before he could defend himself, or even perceive his danger. He died soon after; and all intercourse with the natives having ceased with the attack upon Hall, Baffin and the crew returned to England. It was in his report of this voyage that Baffin first indicated the method of finding the position of a vessel at sea by observation of the heavenly bodies.

In 1613, as has been stated, William Baffin was in the sea of Spitzbergen with five other captains, in the employ of the Muscovy Company. Like his predecessors in that line—Bennet and Poole—and his companions of that season—names unknown—Baffin turned the voyage of 1613 mainly into a commercial venture for his employers. It was, however, on this voyage that he remarked the extraordinary refraction of the atmosphere in northern latitudes, and determined its quality at the horizon to be twenty-six minutes. He modestly adds: "I suppose the refraction is more or less according as the air is thick or clear, which I leave for better scholars to discuss." He also entertained the hope, based on an open sea between Greenland and Spitzbergen, that a passage to the Pole might be discovered. He recommended to the company an annual appropriation of \$750 or \$1,000 for that purpose, deeming a small vessel with a crew of ten men adequate to the undertaking. He meant perhaps that such a vessel detached from the whaling fleet for an

annual experiment might in some favorable season achieve the desired result.

In 1614, Captain Gibbons, a relative of Sir Thomas Button, and a companion in the search voyage of 1612, proceeded to Hudson Bay in search of the Northwest Passage. The season proved very different from that of 1612. He was harassed incessantly by high winds, floating ice, dense fogs and the resulting discouragement of the men, and returned in safety without accomplishing anything.

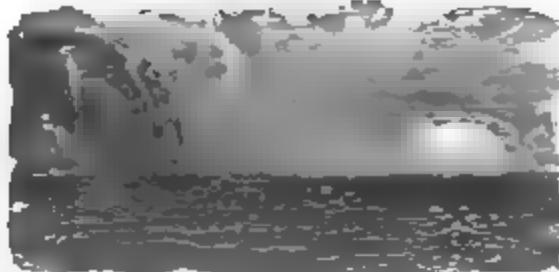
In 1614, also, Robert Fotherby, with William Baffin as pilot, made an Arctic voyage, still in the service of the Muscovy Company. Reaching latitude 80° , they were repulsed by the ice and compelled to return. And again, in 1615, Fotherby, on another Arctic voyage and in the service of the same company, essayed the route of Hudson in 1607, and like him was baffled in the effort to proceed beyond Spitzbergen. He had opportunity to correct some calculations made by Hudson, and more definitely establish some of his observations. In 1615, also, Robert Bylot, in company with Baffin, made a voyage in search of the Northwest Passage. They proceeded to Hudson's Bay and searched in vain for an outlet on the west coast of that great interior sea, which they had supposed was a gulf of the Pacific. How little they could have imagined that were the way as open as that by which they had come, they would yet be but little more than half way from England to the "South Sea" in the latitude they were exploring. All analogy pointed the other way; sea and land alternated at comparatively short distances. There was no such breadth of unbroken continent within their knowledge. Northern Asia presented a similar, and with Northern Europe, a broader continuity uninterrupted by ocean or sea, but those regions were as much unknown to the men of that age as the recently discovered New World. Captain Bylot's report was unfavorable to the theory based on Sir Thomas Button's opinion, that the Northwest Passage was to be found leading out of Hudson's Bay.

It would have been a great gain had Bylot's opinion prevailed instead of Button's, and had Hudson's Bay been thenceforth avoided by all in search of the long-sought passage. The limits,

one might say, within which it can alone be found, if at all, are being narrowed; but the distance is long and the way lies through a labyrinth of straits and islands. And every mile of the way is more or less liable to be blocked by the ice according to the changes of the wind and the seasons. Yet the problem remains, and challenges humanity for a solution; and so generation after generation of heroic navigators nerve themselves to the task. Each successive aspirant for the distinction of discoverer of the hidden pathway, dwells on the difficulties, ponders over them carefully, studies all the pros and cons until he has solved the puzzle in his closet. He then enlists some government or wealthy individual in his project; inspires them with a share of his enthusiasm or magnetism, and the outfit is provided. Arriving at Greenland, he finds ice-floe and icebergs utterly impenetrable to enthusiasm, and almost equally so to sails and oars and sledges. And thus for generations the work progresses. Brave, skillful and hardy navigators snatching at the risk of their lives, and of the lives of men under their charge, here a headland, there an expanse of water; again an island or a river, and ever the problem remains unsolved; but ever, too, the possible limits are narrowing, and man becomes satisfied that if to be solved at all, he is evermore nearing the solution. Such problems have their uses in the increase of knowledge and the development of the race.

In 1616, Bylot and Baffin, giving the entrance to Hudson's Bay a wide berth, pushed northward through Davis' Strait and discovered what they named Baffin's Bay, and thus in their turn gave currency to an error which had as much influence as that of Button, in retarding the actual discovery of the Northwest Passage. They seemed to have been deceived by the western trend of Greenland, and to have on that account concluded that the broad expanse of water which they had discovered, was land-locked on the north. They entered Lancaster Sound as well as Jones' and Smith's Sounds, and yet did not doubt the correctness of their conclusion. They believed all three to be inclosed gulfs or inlets to the bay; and so, lacking opportunity to explore them more thoroughly they returned to England, and Bylot's report of the voyage gave currency to the error. Bylot and Baffin had earned their reputations as

careful and experienced navigators ; and where their observations could be verified they were found to be exceptionally correct. What more natural than not to suspect the fallacy that had deceived them ? Whether Lancaster, Jones or Smith Sounds were straits, or gulfs, was not a question to be determined by conjectures of even experienced navigators, but by actual exploration. And in this way are errors often generated and perpetuated. In this famous voyage the crew consisted of only fourteen men and two boys, besides Bylot and his mate or pilot, Baffin. The vessel was the *Discovery*, the same that had so often braved the dangers of those seas. They saw icebergs—fortunately they did not meet them at close quarters—which they computed to reach 240 feet above the water, and to be probably in all, 1680 feet high. In the neighborhood of Resolution Island, Baffin witnessed the phenomenon of seeing the sun and the moon at the same time, and availed himself of the opportunity to compute the longitude. He adds : “ If observations of this kind, or some other, were made of places far remote, as at the Cape Bona Speranza, Bantam, Japan, Nova Albion, and Magellan’s Straits, I suppose we should all have a truer geography than we have.” Observing the tide to flow from the northward they were at one time confident of success, but finding the water shallow in the inlets they had entered, and being threatened by the ice, they returned, passing Resolution Island in the beginning of August, and arriving in England a month later, without the loss of a man.



CHAPTER IX.

VOYAGES OF DUTCH RESUMED — MANHATTAN ISLAND OCCUPIED — FIRST VOYAGE AROUND THE HORN—VOYAGE OF MUNK—CASKS BURST BY FROST—VOYAGE OF THE MAYFLOWER.

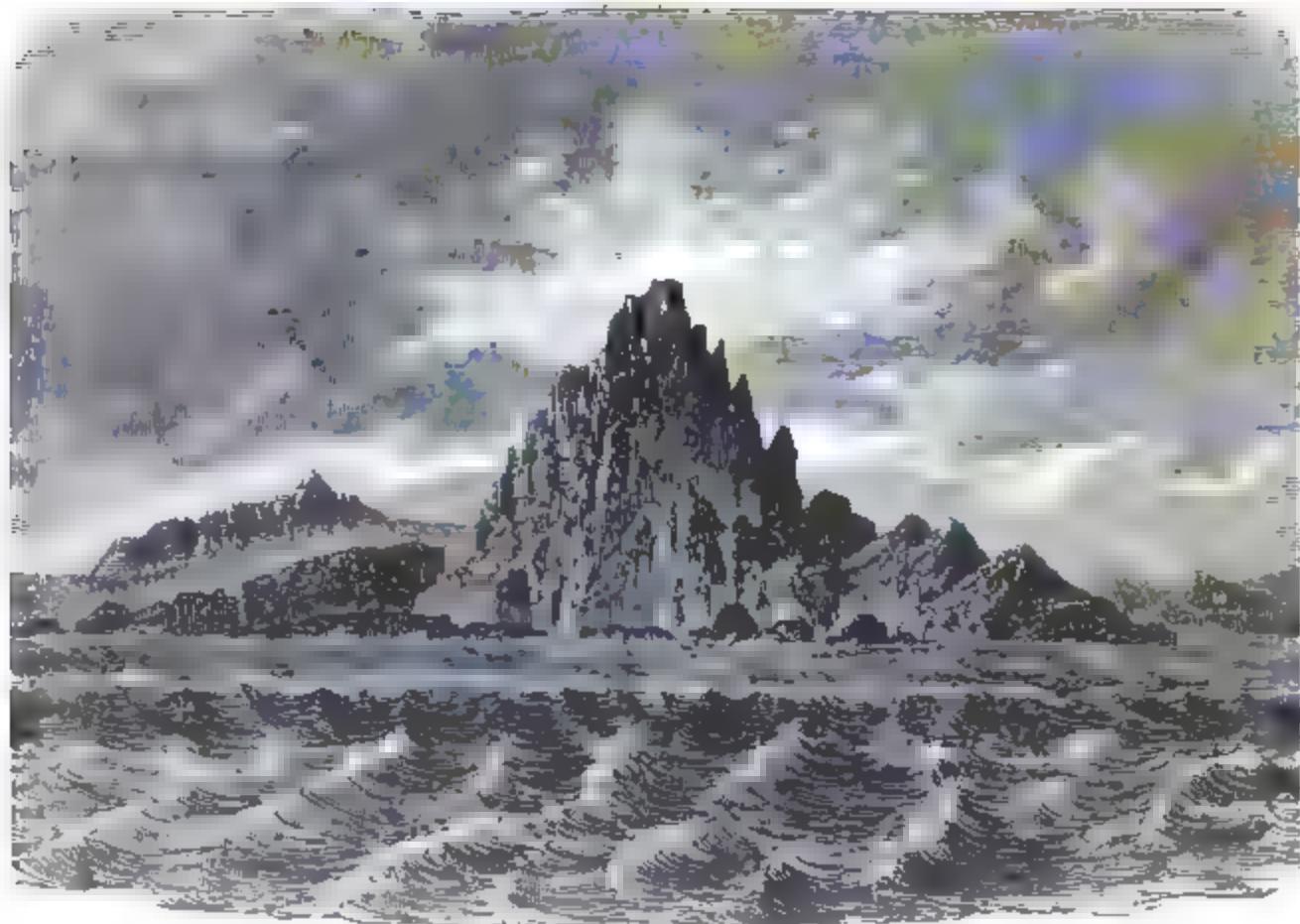
The defeat and death of Sebastian of Portugal by the Moors at Alcazar-Kebir in 1578, and the extinction of the old line of sovereigns, by the death of his uncle, the archbishop, King Henry, in 1580, led to the union of that kingdom with Spain, and the decay of its maritime and colonial power. The Dutch exerted themselves, with success, to seize the Portuguese trade with the East, without, however, embarrassing themselves by establishing military colonies or waging wars of subjugation. The trade, not the territory, was what they sought, and this they adroitly slipped into. Their late sovereign, Philip II., who had just united the crowns of Portugal and Spain, had exhausted his finances in the long effort to subdue them; and was more interested in quarrels with France and England, than in maintaining the maritime supremacy of his dominions. This pre-occupation furnished the enterprising Dutch with a favorable opportunity to prosecute their schemes of commercial aggrandizement. They soon secured a virtual monopoly of the coasting trade of the East. Within a few years of the organization of their great trading corporation, known as the East India Company, in 1602, they had established central *entrepots*, for revictualing and repairing, as well as for influencing the natives and controlling their trade, at the Cape of Good Hope, Java, Sumatra, Borneo, and the Moluccas. They secured exclusive control of the spice trade with these last named islands.

Meanwhile, through the good fortune of the discovery, in 1609, by Hudson, while temporarily in their employ, of the Delaware and the Hudson, or as they called them, the South and North Rivers, the Dutch gained a foothold in North America, which they were not long in mak-

ing use of as a center of trade with the savages of the New World. In 1613 they sent out a mercantile colony to occupy Manhattan Island, now New York. In 1614 Adriaen Block explored Long Island Sound, in a small vessel built by him in American waters; and the same year Cornelius Jacobsen Mey was sent out from Amsterdam to explore the coast north from the Delaware. The exclusiveness of the Dutch East India Company in relation to the specially profitable spice trade of the Moluccas, led to an important maritime discovery.

FIRST VOYAGE AROUND THE HORN.

The States-General of the Netherlands were sharers in the profits of the trading company they had established, and had ordained that none



CAPE HORN.

but the servants of the company should go to the Spice Islands. As an added protection, the routes by the Cape of Good Hope and the Straits of Magellan were by law reserved for their exclusive use. The other merchants might traffic all the world over with these trifling restrictions, but to steer their barks by either of these routes entailed the penalty of

confiscation of the vessels, and arrest of the owners. Schonten, a navigator of experience and ability, conceived the project of finding a passage south of the Straits of Magellan. Assisted in the enterprise by Lemaire, who also accompanied him as supercargo, or perhaps as captain of one of the vessels, and some other merchants of Horn in Holland, Schonten, in 1615, fitted out two vessels, and made the first voyage by way of the American Cape, which he called Horn in honor of the town in Holland where the expedition had been organized.

The strait between Terra del Fuego and Staten Island—that is, island of the States of Holland, also so named by Schonten—he named in honor of his companion, Lemaire, who, for all that, it appears was himself its actual discoverer. After many adventures and discoveries in the islands of the Pacific, they arrived in safety at the Moluccas, in sixteen months from the day of their departure from the Texel. Their vessels were confiscated by the East India Company, and officers and crew sent home for trial. Lemaire, disappointed and excessively chagrined at such a reward for the services rendered, and the discoveries made by himself and companion, died on the voyage home, at Mauritius, in 1616. Schonten, less sensitive than his patron, the merchant, and, as an experienced captain, more accustomed to the arbitrary proceedings of the officials of the great Dutch company, lived to perform several routine voyages to the East, and died in 1625, in the Bay of Antongil, on the east coast of Madagascar, where he had taken refuge from tempestuous weather on his last return voyage—a hero of maritime exploration not so celebrated as some, but worthy of being rescued from oblivion.

VOYAGE OF JENS MUNK.

Christian IV., of Denmark and Norway, made an advantageous peace with Gustavus Adolphus in 1613; and was thus enabled to turn his attention to the welfare of his subjects. He strengthened the maritime interests and power of his kingdom, and extended its commerce to the East Indies, where he was the first sovereign of Denmark to gain possessions. By curbing the encroachments of the Hause towns he en-

larged the sphere of inland trade for his subjects. From a sovereign of such broad ideas and magnanimous purposes it was natural to seek for encouragement in northern exploration. He had authorized as early as 1605 the search expedition under Admiral Lindeman, with the Englishman James Hall, as pilot, and the other Greenland voyages of that period, which have been previously mentioned. And now, in 1619, an able navigator named Jens Munk was sent out in command of two vessels, one with forty-eight seamen and the other with only sixteen. He left Elsinore on the 18th of May and made for the south coast of Greenland. He proceeded from Cape Farewell to Hudson's Bay directly through Hudson's Strait, which he named Christian's Strait in honor of his sovereign. The new name was not retained. Danish voyagers were too few, and English too many in those waters, to permit it. He met a great deal of ice, and on the 7th of September entered what is known as Chesterfield Inlet on the northwest coast of Hudson's Bay, where he was compelled to winter. The ice closed in rapidly around him, and he began at once to erect huts. As soon as these were completed they began to provide winter supplies by hunting.

Fortunately game was abundant. Bears, foxes, hares, partridges, and various wild fowls were made available, and they collected a goodly store, yet not enough for the long winter. With the perversity born of superstition they interpreted some unusual appearances they noted in the sun and moon as ill omens. And when their brandy, wine, and beer, expanded by the frost, burst the casks, a part of the evil prophecy was fulfilled because of their ignorance. They consumed these to excess to keep them from being entirely lost, not knowing that to lose them would have proved a great gain, since imprudence in their use rapidly brought on disease, and this hastened the fulfillment of their worst forebodings. The regular supplies of food were running low, and the scurvy and other diseases to which they had fallen a prey through over-indulgence in spirituous and malt liquors, unfitted them for replenishing their stores. Wild fowl was still abundant, but they could not kill or capture them. Before the end of May, 1620, sixty-two out of the sixty-four men had perished by

famine and disease, and only Munk and two seamen survived. By superhuman exertions they managed to obtain some means of subsistence; and by scraping away the snow they found some grasses, roots, and herbs, which relieved them of the scurvy. They crawled to a neighboring stream and caught fish. Strengthened by this healthful food, and free from the danger of alcoholic stimulants, they soon were able to kill birds and animals. They now proceeded to fit the smaller vessel for the homeward voyage, and actually accomplished the feat, arriving in Norway on the 25th of September.

COLONIZATION VOYAGES.



LANDING OF THE MAYFLOWER.

Among the voyages of colonization of this period, none is more noteworthy than that of the "Mayflower," which arrived at Cape Cod, with the "Pilgrim" colonists Nov. 21, 1620. There were forty-one adult males besides women and children, and formed the nucleus of the

New England settlements. These first arrivals were a branch of the Puritans, and had sought refuge in Holland from the persecutions to which they were subjected in England. Not finding their associations and surroundings congenial in Holland, they conceived the idea of settling in America. They obtained a grant from the southern branch of the English colonization company, known as the London or Virginia Company, but happened to land on the domain of the northern or Plymouth Company.

In 1621 a colony was established in Newfoundland by Lord Baltimore. Several other colonization voyages to various points along the Atlantic coast of America were inaugurated under English, French and Dutch auspices, in the time which intervened between the northern exploring voyage of Jens Munk, the Dane, and the next one of the same sort which merits our attention. Some of these were to found new settlements, and some to strengthen those already established; but all are alike foreign to the scope of our work, and though full of interest, must be omitted.



CHAPTER X.

**VOYAGES OF FOX AND JAMES—ENTERPRISE OF BRISTOL MERCHANTS
—MARVELOUS ESCAPE FROM ICEBERGS—REACH OPEN WATER—
LAND ON CHARLTON ISLAND—THE SHIP SUNK—BUILDING A
BOAT—SUFFERING AND DEATH—THE BOAT LAUNCHED—POEM
OF JAMES—THE RETURN VOYAGE.**

In 1631 Captain Luke Fox was given command of one of the king's ships, to search for a Northwest Passage. On taking leave, the king furnished him with a chart exhibiting all his predecessors' discoveries, a letter of instructions, and a letter of introduction to the Emperor of Japan. Fox says "he had been itching after northern discovery ever since 1606, when he wished to have gone as mate to John Knight." In his account of his voyage, he warns "the gentle reader not to expect here any flourishing phrases or eloquent terms; for this child of mine, begot in the northwest's cold clime, where they breed no scholars, is not able to digest the sweet milk of rhetoric."

In Hudson's Strait, Fox was much hampered with ice, and yet the masses he met were "seldom bigger than a church." At Salisbury Island, in Hudson's Strait, $63^{\circ}, 27'$, he observed that the needle became sluggish, which he ascribed to "the sharpness of the air interposed between the needle and the attractive point." He gave the name, Sir Thomas Roe's Welcome, to an island on the northwest coast of Hudson's Bay, but the channel dividing Southampton Island from the mainland is now known by that name. It has not yet been definitely ascertained whether Southampton is one or many islands. On the island discovered by Fox was found a burying-ground of the natives; and it was ascertained that they had deposited with the dead, bows, arrows and darts, many of them with iron heads, and one with copper. At Nelson's River he found the cross erected by Sir Thomas Button. It was in

this neighborhood—that he met Captain James' vessel on the 29th of August, which he visited with a few of his men. He seems to have sailed directly homeward after that interview, for he arrived in England on the last day of October, "not having lost one man or boy, nor any manner of tackling, having been forth nearly six months; all glory be to God." At Roe's Welcome he had observed the tide set in from the north, and this, together with the great number of whales met there, led him to think he was near the Northwest Passage, or entrance to the South Sea. He contributed to keep up the theory that in Hudson's Bay would be found the coveted route to Japan.

Bylot and Baffin had pronounced against it, but they had also declared against Baffin's Bay, and public opinion in England was divided, but with a preference for the former. It certainly opened far to the south and west, which was as certainly the direction in which lay the South Sea. What is more natural than to connect the two in imagination, and infer their connection in fact?

Not to be outdone by the London merchants, who supplied Fox's outfit, those of Bristol furnished a similar expedition on the same errand, in the hope of winning the glory of the coveted discovery for the good city of Bristol, from which the Cabots had sailed five generations before. Their ship was intrusted to Captain Thomas James, who was kindly furnished by the king with a duplicate of the documents given to Fox.

James selected a crew of twenty-two picked men for his vessel of seventy tons, or twice as many as were absolutely necessary. They were all active, sober young men, and unmarried, and had been chosen from a body of seamen who had never made a voyage to those regions. They left Milford on the 17th of May and sighted Greenland on the 4th of June. One of the boats was ripped by the ice, but soon repaired, the ship being carefully provided with all things necessary to meet such accidents, as well as with a supply of provisions for eighteen months. This was largely due to the wise forethought of the commander. Around icebergs and through ice floes, with sails and cordage frozen, they threaded their weary way to Resolution Island, which they reached on the 18th. For five days they hung between life

and death, engaged in an incessant struggle to keep the ship from being crushed by the icebergs, which sometimes overhung her deck and grated her sides. In gratitude for their escape from destruction they named the place the "Harbor of God's Providence." Captain James, with great exertion and at great risk, found a sheltered cove at $61^{\circ} 24'$, to which they now succeeded in working the boat.

The rise of a favorable wind on the next day induced them to leave this secure refuge and renew the battle with the ice floes. Not an acre of open sea could be discerned from the masthead, and the ice-pack crunched against the sides of the ship with such violence that they feared it would tear away the planks and break her to pieces. It was the 6th of August before they got into the open sea, and on the 11th they saw land on the western shore of Hudson's Bay, in latitude $59^{\circ} 40'$. On the 22d, while at anchor, the ship was driven by a gale, but fortunately the anchor again caught, while the sudden shock nearly proved fatal to several of the crew. Eight of them were hurled from the capstan, and all were more or less injured. One, the gunner's mate, had his leg so crushed that it became necessary to amputate it.

After the visit from Captain Fox, whom they entertained on board as well as circumstances would permit, on the 29th of August, somewhere in the vicinity of Nelson River, they continued to explore the southern coast, moving eastward. On the 3d of September they sighted the cape at the entrance of the bay which has been called James' Bay in honor of the navigator. This headland James named Cape Henrietta, in honor of the Queen of England. Proceeding south, he next discovered an island, in latitude $52^{\circ} 45'$, which he named Lord Weston's Island; and in $52^{\circ} 10'$, one to which he gave the name of his patron, Sir Thomas Roe. James had some hope of finding a passage to the "River of Canada," the St. Lawrence, from the foot of the bay. They landed on several small islands in search of an eligible spot for winter quarters, as it was growing late in the season and their ship had received some injury in its battles with the ice, rocks, and shoals. On the 2d of October, four months after they had sighted Greenland, a landing

was effected on a well-wooded coast which they first named for the Earl of Derby, but this name they afterward changed, for some unexplained reason, to Charlton Island. From its highlands they could see nothing more suitable to the south, the bottom of the bay being studded with rocks and shoals.

They now cut a large quantity of wood, enough at least for three months' fuel, and at the request of the sick, erected a hut on the island. They explored the island carefully, among other objects to ascertain if there were any savages. They found traces of them, but none were then on the island. A party of six proceeded into the interior on a hunting expedition, Oct. 14, and returned the next day with one deer, which they had brought twelve miles. They reported having seen some others. A few days later another party set out to explore the island, and returned unsuccessful and disabled by the cold. They lost one man who, in crossing a pond, broke through the ice and was drawn under. They dug a well near the hut, obtaining drinkable water but of a peculiar taste. On the 12th of November the hut took fire, but they were able to save it. Thenceforth they kept up a regular fire-watch; for as they required great fires to protect them from the cold it was necessary to use every precaution to prevent the disaster of being burned out. On the 22d died one of their number who had lost a leg at the time the eight had been hurled from the capstan.

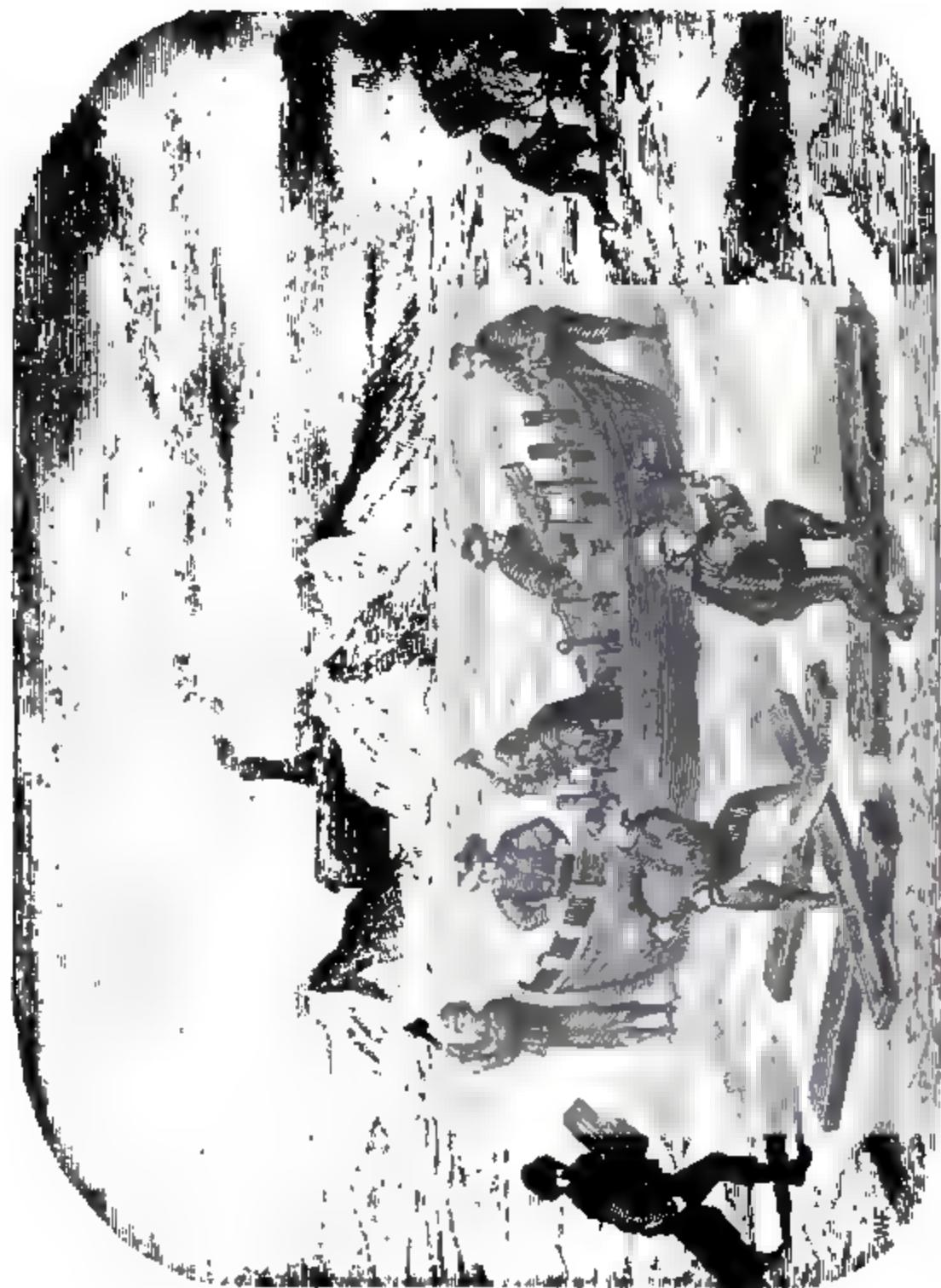
Not finding a sheltered spot for the vessel, she lay at anchor off the island, exposed to the ice, and on the 24th she was driven by the pressure toward the shore and stopped a mile from the land in twelve feet of water. Finally, on the 29th, after the ship had been forced close to the shore by the wind and ice, they scuttled and sunk her. They saved most of the provisions, but lost their clothes and the medicine chest. The seventeen that had remained now joined the sick in the hut, and thawed themselves out by a rousing fire. The captain encouraged them to hope for the best, reminding them that if the worst came they were as near to heaven there as in England. They pledged themselves to be faithful to one another, to do their utmost for the common welfare, and obey their commander to the death. Should the ship prove irrecovera-

ble or unseaworthy in the spring, they would build a boat from the timbers and the wood on the island, and try to return to the haunts of civilized men, if not to England, by that means.

On the 10th of December the carpenter began to work on the new boat. The crew were busily engaged from the first to the twenty-first of the month, rescuing goods from the hold of the vessel, and taking them to the shore with great difficulty. The well had frozen, but they found a spring of water under the snow at a short distance, which served them better. They constructed three more huts, one of which was to serve as a kitchen. The snow covered their houses, adding to the warmth, and they celebrated Christmas as joyfully as could be expected. Knowing nothing of Gulf Stream or isothermal lines, they were at a loss to understand how the climate could be so much more severe than in the corresponding latitude at home. They were about on a line with the port of Harwich, and not quite one degree and a quarter north of the latitude of London.

By the end of January the ground was frozen to a depth of ten feet; and the men were terribly afflicted by disease, accompanied with sores, pains and swellings ; fully two-thirds being under the surgeon's care. They bore up manfully, and despite their privations and sufferings, struggled bravely for their common safety. With feet frost-bitten and shoeless, and wrapped in rags as a substitute, they walked into the forest to gather their daily supply of wood. And so they fought the battle through February, with the special discouragement of the illness of the carpenter, around whom chiefly clustered their hopes of seeing their native land again. But the brave carpenter managed to make some headway with his boat and kept at work even when so ill as to require to be carried to it. He supplied models of the timbers he wanted, and the men searched for suitable trees through the forest, cut them down, and brought them to him. By Easter, April 1st, he was entirely disabled, with four others; of the remainder only as many more retained strength and appetite to consume their daily allowance of food. The well waited on the sick, the sick did what service they could, and so they continued to fight the good fight, and do their duty one to another.

BUILDING A BOAT.



During April those who were strongest busied themselves with examining the vessel, trying to ascertain if she was seaworthy. The new boat was about half built, but the carpenter was dying, and should both fail it would be necessary to cross to the mainland on the ice, before it broke up. They celebrated the last night of April, the eve of May-day, with the observances customary in those days in England, thus trying to keep up their spirits by feigning a jollity they did not feel, and unconsciously recognizing a law of human life that cheerfulness promotes health. The master's mate died on the sixth, and the carpenter on the eighteenth of May, reducing their number to eighteen besides the captain. Still they worked at the ship, and to their industry and activity, is probably to be ascribed the survival of so large a proportion of them. The captain seemed born to lead under adverse circumstances. And he was ably seconded by his men. The dying carpenter kept at his work till the last moment, and left the boat in so forward a state that the men could finish it, should the ship be found unfit for use. All honor to the memory of William Cole, one of the earliest heroes of Arctic exploration! On the 22d they succeeded in pumping the ship almost dry, and on the 24th the ice broke all along the bay with a tremendous noise. With their habitual foresight they cleared a spot for vegetables a month earlier, and these, together with some wild vetches, were given to the sick, who were much benefited thereby.

By the 8th of June they had pumped the ship entirely dry, and she floated in the dock she had excavated by her own weight in the sand. On the 11th they were enabled to hang the rudder, which had been lost months before in the storm, and which they had hunted for with great labor under the ice, and rescued three weeks before. On the 16th they got the vessel into deep water, and on the 19th they saw a considerable expanse of open sea, and towed their vessel to where they had originally anchored her, about a mile from the shore. They now got the ballast which they had previously thrown overboard, and placed it and the provisions again on board. June 21 Capt. James erected a cross on which he inscribed the names of the King and Queen of England, with the added title of Sovereigns of Newfoundland, and of "these

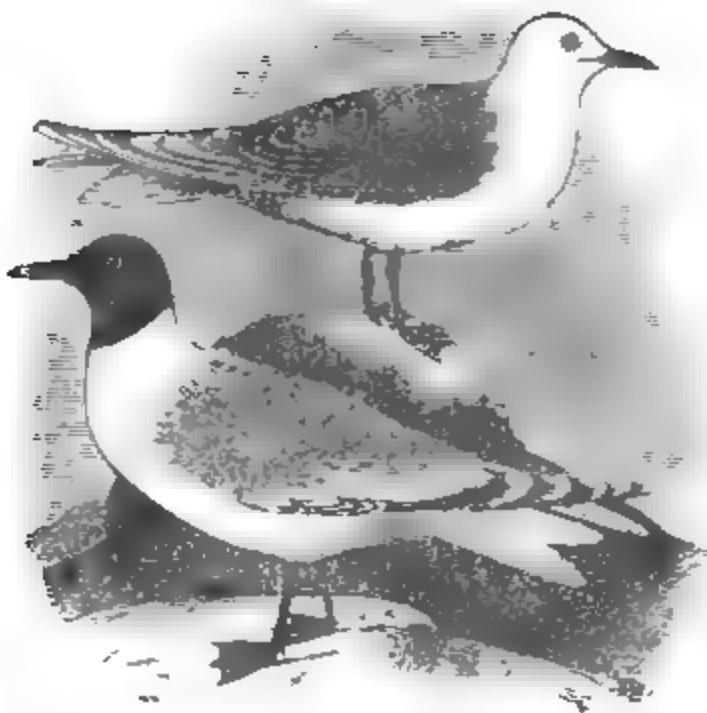
territories to New Albion," still under the impression that they were near California and the South Sea. On the 25th he built a fire on the island in the hope of attracting the natives, if there were any on the island, and had difficulty in escaping unharmed. The fire spread rapidly and burned the houses they had constructed, but they had fortunately removed everything of value in advance. By the last of the month they had their ship full rigged and everything in order, not forgetting their dead comrades, over whose graves they raised memorial cairns. The body of the one buried at sea had been thrown up meanwhile, and was interred with the others. July the first the captain made a record of what had transpired and of his future intentions, and left it at the cross he had erected. They paid a final visit to the tombs of their dead, where morning and evening prayers were read, and the last meals on land were prepared and eaten. The captain, with characteristic good feeling, composed the following lines:

I were unkind, unless that I did shed
Before I part, some tears upon our dead ;
And when my eyes be dry, I will not cease
In heart to pray their bones may rest in peace.
Their better parts, good souls, I know were given
With the intent that they return to Heaven.
Their lives they spent to the last drop of blood,
Seeking God's glory and their country's good ;
And as a valiant soldier rather dies
Than yield his courage to his enemies,
And stops their way with his hew'd flesh, when death
Hath quite deprived him of his strength and breath ;
So have they spent themselves, and here they lie,
A famous mark of our discovery.
We that survive, perchance may end our days
In some employment meriting no praise ;
They have outlived this fear, and their brave ends
Will ever be an honor to their friends.
Why drop you so, mine eyes ? Nay, rather pour
My sad departure in a solemn shower.
The winter's cold that lately froze our blood,

Now, were it so extreme, might do this good,
As make these tears bright pearls, which I would lay
Tomb'd safely with you, till doom's fatal day;
That in this solitary place, where none
Will ever come to breathe a sigh or groan,
Some remnant might be extant of the true
And faithful love I ever tender'd you.
Oh! rest in peace, dear friends, and—let it be
No pride to say—the sometime part of me!
What pain and anguish doth afflict the head,
The heart and stomach, when the limbs are dead?
So grieved I kiss your graves, and vow to die
A foster-father to your memory!

They now set sail on the return voyage, but were driven about by wind and icebergs in James' Bay during the whole month, for though they passed Cape Henrietta on the 22d, they were again driven within it on the 30th. On the eighth of August they had reached latitude $55^{\circ} 34'$, or about where they had parted from Captain Fox, twelve months lacking three weeks, before—a weary year! And they were still in as great danger as ever, for the ship leaked so badly that they became apprehensive that they must, after all their labors, abandon her. Nor were they yet free of their persistent enemy, the ice, from which they might be said to have been never free for fourteen months. Finally, on the 17th, they got clear of the ice, and on the 22d they were in $58^{\circ} 20'$, and two days later in $63^{\circ} 30'$, about the entrance of Hudson's Bay. But lest they might be tempted to relax their efforts—in which and the energy to put them forth had lain their salvation from the first—a fierce storm arose on the 25th, so that they could neither eat nor sleep for twenty-four hours. To add to their discomfort and danger, it brought the ice again upon them. Upon consultation with his men, Capt. James now concluded to turn homeward. The strain had been too long continued to warrant any further efforts at exploration in new directions. The year had been exceptionally unfavorable, and they had already entered on the 16th month of absence. They were in latitude $65^{\circ} 30'$, when this resolution was taken, and still among icebergs which over-

topped the mast-head. In a week they reached Resolution Island, at the mouth of Hudson's Strait, and it was not until Oct. 22, 1632, that they reached Bristol, harassed to the very last by adverse winds, after an absence of seventeen months and five days, or very nearly the period for which Capt. James had provided stores and supplies in advance.



GULLS.

CHAPTER XI.

AN INTERVAL BETWEEN ARCTIC VOYAGES—WINTERING IN THE ARCTIC REGION—DEATH OF MAYEN—OTHER DUTCH VOYAGES—CAPTAIN RAVEN LOSES HIS SHIP—BRUTALITY OF A DUTCH CAPTAIN—WHICH IS THE WAY TO INDIA?

A long interval in Arctic voyages of exploration now ensued. The labors of Captains Fox and James had increased the probability that the Northwest Passage should be sought elsewhere. The one had failed to find it in the extreme north, the other in the extreme south, and they and their predecessors, in the west of Hudson's Bay. And, as we have seen, Baffin's Bay had been declared against by its discoverers. Public opinion ceased to be occupied with the question, and in England it was very earnestly engaged in discussing the great religious and political questions of the day. The persecution of the Puritans, the beheading of Charles I., the rise and fall of Cromwell, the restoration of Charles II., the revolution and expulsion of James II., with the turmoil and confusion and pre-occupation incidental to these various changes, left little leisure for outside enterprises. “The tight little island” itself supplied an ample field for the enterprise and daring of her most adventurous sons. It is only in times of peace that man occupies himself with discovery, or makes any important advance in the arts of life. The art of war is a deadly art, and all its tendencies are to destruction. It may sometimes be necessary, but even then is only a choice of evils.

In France, “the wars of the Fronde,” the struggles of the parliament and of the nobility against the encroachments of the crown, the burdens of taxation and administration, and later on the military eruptions of the “great monarch,” with the attendant glory, produced the same results as in England, in relation to voyages of exploration. Meanwhile, the “Thirty Years’ War,” 1618–48, had embroiled all

Europe. And so the remainder of the seventeenth century, stormy enough on land, was marked by a complete lull in maritime exploration. Such voyages as were undertaken to America had colonization, not discovery, for their object; and in them were engaged some of the most enterprising spirits among the English, French and Dutch of that age. But commerce, besides supplying the wants of the belligerent hosts contending on almost every battlefield of Europe, was not unmindful of the peculiar riches of Arctic seas. Accordingly we find that Dutch and English whaling voyages continued uninterruptedly, and from among them a few have been selected as most noteworthy for the stirring adventures, hairbreadth escapes and tragic endings which characterized them. Through such experiences, in great measure, has been slowly and painfully gathered a knowledge of the methods and precautions necessary to the preservation of human life in those northern latitudes.

WINTERING IN THE ARCTIC.

The Dutch had offered prizes to such as would volunteer to spend a winter on Mayen Island, the headquarters of the whale fishery. This island had been discovered and taken possession of for the States of Holland, in 1611, by the captain of one of their whalers, Jan Mayen, for whom it was named. In the summer of 1633, before the return of the whaling fleet, seven men volunteered to winter there, in latitude 71° , not quite midway from Iceland to Spitzbergen. Their sojourn began with the 26th of August, and they suffered no inconvenience until the 8th of October, when a fire first became necessary to their comfort. After that date the winter approached rapidly, and on the 19th ice began to form on the shore. The cold and ice grew in severity until the 19th of November, when the sea became frozen as far as the eye could reach. Afterward the weather grew mild for about three weeks, but on the 8th of December the cold set in with renewed severity, and they confined themselves to the hut for nearly four months, idle and inactive. They had lived meanwhile, on salt meat, and had killed but few bears, and their supply of beer and brandy was, perhaps, too liberal for their welfare.

About the middle of January they succeeded in killing a single bear, the flesh of which afforded a healthful change in their diet. It was the middle of March before they killed another; but scurvy had set in and taken such hold by that time that the relief derived was only palliative, not preventive nor curative. On the 3d of April only two of the seven could stand erect; and on the 16th one of them died. This entry was made on the record a few days later: "We are now reduced to so sad a state that none of my comrades can help themselves, and the whole burden, therefore, lies on my shoulders. I shall perform my duty as long as I am able, and it pleases God to give me strength. I am now about to assist our commander out of his cabin; he thinks it will relieve his pain; he is struggling with death. The night is dark, and the wind blows from the south." On the 23d he died; and on the 26th they killed their dog, a poor substitute for bear's meat. On the 28th the ice left the bay, and on the 30th the sun shone brilliantly. But it was yet thirty-five days before the whaling fleet appeared, and when at last it had arrived none of the seven were found alive, and the record of April 30th was the last made. A little of the energy and forethought of Capt. James and his crew in James' Bay, two years before, would have saved them all, for though they were almost twenty degrees farther north, the winter was comparatively mild, and the genial breath of spring visited them early. It is now understood that the chief danger from Arctic winters does not arise from the high latitude, but from the neglect of proper precautions. This principle is enforced by the result of a similar experiment farther north, the same year.

Seven other Dutchmen had volunteered to winter in North Bay on the north coast of Spitzbergen, latitude 80°, and began their trial four days later than those on Mayen Island. No sooner had the fleet left than they set to work to collect fresh provisions to last them until the return of the fleet in 1634. They hunted the reindeer and caught wild fowls, and gathered herbs. They killed whales and narwals, or sea-unicorns, and thus secured both food and exercise. When the sea began to freeze in October, they broke through the ice and let down their nets to catch fish. And when toward the close of October the cold had be-

come so intense and the ice so thick that they could no longer fish or even go abroad, they exercised themselves as actively as they could indoors. And so they passed through the winter without a death, or even serious illness; and on May 27, 1634, only eight days earlier than the arrival of the fleet at Mayen Island, they were taken aboard safe and sound, after a sojourn of nine months, lacking five days, in latitude 80°.

If further illustration of the principle referred to be desired, it may be obtained from the annals of the same people. Before the fleet returned to Holland in 1634, seven other men were left at North Bay to renew the experiment. They were supplied with an abundance of salt provisions, liquors and medicines, and began their sojourn on the 11th of September. Either because they were of the indolent disposition of the men left on Mayen Island, or because of the eleven days' later advent, or possibly because the denizens of the forest, anticipating a keener winter, withdrew earlier to their winter quarters, they failed to provide a store of fresh provisions. They soon became victims of the scurvy, which they tried to guard against by eating separately, and avoiding contact with each other, foolishly supposing it was caught by infection instead of recognizing that its fruitful source was the salt provisions, which they had not the energy to vary with the fruits of the chase. On Jan. 14 one died, and on the 17th another, and soon a third followed. The surviving four busied themselves in making coffins for their dead comrades—an unprofitable industry which showed their good feeling, but not their good sense. In the early part of February they killed a single fox; and bears prowled around for whom they should have made living coffins in their stomachs. On the 22d of February only one was in a condition to feed the fire; and on the date of the last record made, four days later, the four were still alive, but the fire-tender had succumbed with the others. "We cannot long survive," writes the penman, "without food or firing; we are unable to render each other the least assistance, and each must bear his own burden." On the arrival of the whalers for the season of 1635 they were dead, not one having survived, thus completely reversing the record of their predecessors on the same spot.

A number of these whaling adventures in the north might be recounted, and we will briefly mention a few. In 1639 Capt. Didier Albert Raevn lost his ship by contact with an iceberg in a driving snow-storm. Twenty out of eighty-six were rescued by another whaler forty-eight hours later, and of these one was so injured by the exposure that he died soon after. In 1646, four survivors of a crew of forty-two Englishmen were rescued from the ice by Capt. John Cornelius Van Muniken, after they had been exposed for fourteen days. They had dug a deep hole in the ice and piled blocks of ice all around to protect them from the weather. They had fortunately saved provisions and tools, and the time of year was not unfavorable, being the end of May and the beginning of June. But three died in a few days after being taken on board, so that only one was finally saved to return to England. In 1670, Capt. Lorenz Pit, with thirty-six men, were similarly wrecked by the ice, and after nearly sixty hours' exposure, were all saved. In 1675 not less than fourteen Dutch whalers are known to have been lost off Spitzbergen. Capt. Cornelius Bille, with his crew of thirty-four men, were saved after being tossed about for fourteen days in an open boat, some years before. This year his ship and another, being in company close to the border of the impenetrable polar ice, were crushed by a sudden breaking loose of the icebergs.

The crews managed to scramble on to the ice before the vessels were entirely submerged, and they saved the boats and some provisions. Capt. Bille, with a few of the more enterprising of the combined crews, sixty persons, took two of the boats, and were saved by other whalers. After ten days those who had remained concluded Bille's course was the wisest, and they also took to the sea. They fell in with a French whaler, and were humanely taken aboard. Eight of them not wishing to trespass on the Frenchman's generous hospitality, whom they found overcrowded, rowed off to a Dutchman, which came in sight. To their dismay the brutal captain refused to give them shelter, and they were compelled to take refuge on the ice. There they passed sixty hours under the shelter of a sail, within sight of their countrymen whose vessel was at anchor. Owing to the remonstrance of his men, or dreading that

his misconduct might be reported at home, the surly captain relented so far as to permit his shipwrecked countrymen to sleep on board. A few days later, while on the ice, he weighed anchor, leaving them behind. They pursued in their boat, and were at last taken on board another vessel. In 1676 a fleet of Dutch whalers was suddenly caught by the ice in Vaigats Strait on the eve of their return, and were saved by the resolution and presence of mind of Capt. Kees, who allayed the panic. After a detention of nineteen days, the weather grew mild, a thaw set in, and they found themselves free as suddenly as they were previously locked up. Coolness and courage, patience and energy, a keen insight, good judgment, and quick execution, together with abundance of fresh wholesome food—which the canning process has now made easy—are the chief requisites to success in Arctic voyages. But the examples given also show that while these precautions reduce the risk to a minimum there is always great danger, which only the best trained and hardest can hope to cope with successfully. Arctic explorers should be selected with great care; and no unfit volunteer should be permitted to endanger the lives of others and his own.

AGAIN, WHICH IS THE WAY TO INDIA?

It was now nearly seventy years since Hudson had pronounced against the availability for commercial purposes of a northeast route to China and India, and exactly one hundred years since Frobisher had tried in vain to accomplish “the only great thing left undone in the world,” a Northwest Passage to the same countries. Many attempts had been made in both directions, some new geographical information had been gleaned at infinite cost and labor, but the problem remained unsolved. The latest trials had been made in the west, and there too, they were resumed. Baffled and disappointed, but not entirely cast down, civilized man would not give it up and rest content. The ocean should yet be made to surrender its secrets to the lord of creation. This was more than a hundred years before Byron sang, “Man marks the earth with ruin; his control stops with the shore”—a dictum which man will not accept. Man’s control of the sea is different, but it is also very real;

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CHAPTER XII.

NORTHWEST VOYAGE OF GILLAM—ALLEGED DISCOVERY OF A NORTHWEST PASSAGE — HUDSON'S BAY COMPANY CHARTERED — A PILOT'S STORY OF THE NORTH POLE—VOYAGE OF WOOD—WRECK OF WOOD'S SHIP—JAMES KNIGHT—REPORT OF INDIANS CONCERNING MINES.

A generation had passed away since the voyages of Fox and James, and Hudson Bay had begun to pass into oblivion, as no other than a dreary and dangerous waste of water in the midst of inhospitable and uninhabited lands, when in 1669 the attention of England was again turned to it.

The fur traders of New France had penetrated through the forests of Canada in every direction in pursuit of that very profitable branch of commerce. One of these enterprising adventurers, Grosselier, reached the shore of Hudson's Bay. Believing he had made an important original discovery, he returned to France to lay it at the feet of his sovereign. But the *grand monarque*—Louis XIV.—was more concerned about extending his home dominion to the Rhine than his transatlantic domains to the Hudson Bay or elsewhere. So Grosselier's story fell on deaf ears, until it reached those of the English ambassador, who encouraged him to try the Court of St. James, and gave him a letter to Prince Rupert, cousin of Charles II., who had been admiral in the war of the Restoration, and a few years later against the Dutch. He was favorably received, and intrusted with one of the king's ships, for the purpose of founding a colony on the shore of Hudson's Bay, and searching for the Northwest Passage. Henry Oldenburg, first secretary of the Royal Historical Society, established in 1662, and correspondent of Milton and Boyle, thus wrote to the latter in relation to this voyage:

“ Surely I need not tell you from hence what is said here with great

joy of the discovery of a Northwest Passage made by two English and one Frenchman, lately represented by them to His Majesty at Oxford, and answered by the royal grant of a vessel to sail into Hudson's Bay and thence into the South Sea; these men affirming, as I heard, that with a boat they went out of a lake in Canada into a river which discharged itself northwest into the South Sea, into which they went and returned northeast into Hudson's Bay."

In 1670 the king granted a liberal patent, or charter, to the Hudson's Bay Company, which consisted of his cousin Rupert, and a few specified associates. The company was actually invested with absolute proprietorship and a real though subordinate sovereignty, and the exclusive traffic of a territory of unknown extent, loosely described as Rupert's Land, and ordained to cover all that had been discovered or might yet be discovered within the entrance to Hudson's Strait—a magnificent grant, truly; there was nothing mean about Charles. "In consideration," says he, "of their having undertaken, at their own cost and charges, an expedition to Hudson's Bay for the discovery of a new passage into the South Sea, and for the finding of some trade in furs, minerals and other commodities, whereby great advantage might probably arise to the king and his dominions, His Majesty, for better promoting their endeavors for the good of his people, was pleased to confer on them exclusively all the lands and territories in Hudson's Bay, together with all the trade thereof, and all others which they should acquire," etc.

Though discovery was one of the primary objects of this princely endowment, Capt. Zachariah Gillam, who was placed in command of the expedition, seems to have added but little to the geographical knowledge of the regions of Hudson's Bay. He wintered at the mouth of what he named Rupert's River, in honor of his patron, and built a small stone fort at its mouth, which he named Fort Charles, in honor of the king. This was the first English settlement in the Hudson Bay Company's territory; and for about a century they confined themselves to the coast, and are not known to have made a single effort at additional discovery. The indisposition of monopolists to diminish their dividends by

unprofitable expenditures, accounts for the omission. In 1770 they explored the basin of the Coppermine, and toward the close of the century, that of the Mackenzie. In the first half of the present century they patronized two or three overland expeditions, all of which will receive attention in due time. In 1869 the company was finally bought out by the British government for \$1,500,000, and its territory formally incorporated with the Dominion of Canada in 1870, on payment of the same amount.

Capt. Gillam spent a more tolerable winter, owing probably to its being a milder season, than his predecessor, James, had done on Charlton Island, in nearly the same latitude, and returned to England without having received any clue from his supercargo, Grosselier, or any one else.

THE NORTHEAST VOYAGE OF WOOD.

Turn we now to the eastward to see what the navigators were able to achieve in that direction. Joseph Moxon (1627-1700) hydrographer to Charles II., and manufacturer of globes and maps, as well as writer on mathematics and navigation, and Fellow of the Royal Society, theorized about the Northeast Passage to China until he satisfied himself and some others that it was feasible, and a new interest was awakened. He adduced many arguments, mainly from his inner consciousness, as was the custom in those days, and not to any large extent from demonstrable facts, which is the modern and scientific method. He added the following story, which doubtless proved convincing, but it lacks one element of persuasion with even the most incredulous—truth. He relates that the pilot of a Greenlander, or whaler in Greenland seas, declared to him that he sailed to the North Pole, and continues thus:

“Whereupon, his relation being novel to me, I entered into discourse with him, and seemed to question the truth of what he said; but he did assure me that it was true, and that the ship was then at Amsterdam, and many of the men belonging to her could justify the truth of it; and told me, moreover, that they had sailed two degrees beyond the Pole. I asked him if they found no land or islands about the Pole. He

replied, ‘No; it was a free, open sea.’ I asked him if they did not meet with a great deal of ice. He said, ‘No; they saw no ice.’ I asked him what weather they had there. He told me ‘Fine, warm weather, such as was at Amsterdam in the summer time, and as hot.’” There could no longer be any doubt. The hardy pilot growing bolder as he progressed, and finding a student simpleton for an interlocutor, did not hesitate to draw freely on “his imagination for his facts.” Had Moxon kept up his interrogatory, he might have learned that the fish jumped into the “ship which was then at Amsterdam,” ready cooked and eager to be eaten, and that in each one when opened was found a pearl as large as a hen’s egg.

Among the others who were carried away by the “arguments” of Moxon, was Capt. John Wood. He had acquired experience and distinction under Admiral Marlborough against the Dutch and Barbary corsairs. In 1675 he drew up a memorial to the king, tinged with sanguine expectations of surmounting all difficulties. In this he presented the argument based on the configuration of the earth, and modestly suggested that his predecessors may have missed the proper passage. He constructed a map to accompany the memorial, and presented both to the king and his brother, the Duke of York, the future James II. He showed in a manner satisfactory to himself that Japan could be reached in a few weeks, and that a voyage to the Indian or Malay Archipelago would be easier, safer and shorter by this route. Prominent merchants and navigators were consulted by the king, but the delusion had seized them as well as Moxon and Wood. It was in the air, like many popular but foolish enterprises before and since. The “Speedwell,” one of the king’s ships, was placed at his disposal, and fitted out in the royal dockyards at Deptford, at the king’s expense. She was supplied with all the best appliances of the period, and furnished with a crew of sixty-eight men. The Duke of York and seven associates fitted out at their expense a smaller vessel of 110 tons, named the “Prosperous,” to accompany the “Speedwell.” She was manned by eighteen men. Both were victualled for sixteen months, and loaded with such merchandise as was thought likely to find a ready market in Japan. Capt. Flanes

took command of the "Prosperous"; and it was agreed between the commanders that they should direct their course between Nova Zembla and Spitzbergen. "My idea was," says Wood, "to follow exactly the track of Barentz, and proceed due northeast after reaching the North Cape, in order to get between Greenland." Spitzbergen was then supposed to be a part of Greenland.

May 28, 1676, the vessels left the Nore, and on the 2d of June took refuge from a northwest gale in Brassa Sound in the Shetlands. On the tenth they weighed anchor, and on the 22d had rounded North Cape, whence they sailed northeast and immediately encountered the ice in latitude 76° . For five days they skirted this great mass of ice vainly seeking an opening. Wood concluded it was one vast ice continent stretching from Nova Zembla to "Greenland," and that Barentz and others were mistaken in the opinion that there was land to the north of 80° . On the 29th of June he changed his course to the west, abandoning his cherished theories. They had proceeded but a little way when the "Speedwell" struck upon some hidden rocks, the extension of which, in sarcastic contrast with the name of his ship, he named Point Speedill, in $74^{\circ} 30'$, the most western promontory of Nova Zembla. The ship lay beating on the rocks for several hours, the crew laboring in vain to save her. The weather clearing a little, they were amazed to find land right under their stern. A boat was sent to ascertain if a landing could be effected, but it returned unsuccessful. The fog lifting more completely, the captain descried a clear stretch of beach, which the long boat with twenty men was enabled to reach. The boat returned. Some provisions and supplies were now put aboard the small boat, but she was upset, and her cargo, including the captain's papers and money, and one of the crew, were lost. Another seaman was left aboard so ill that he could not be removed. All the others were taken ashore by the long boat, and a tent was erected and a fire built. On the 30th the ship began to go to pieces and much of the wreck floated to the shore, supplying them with material for huts and firewood. The next two days they secured some provisions that were washed ashore from the wreck. Finally on the eighth their more fortunate companion who

had escaped the shoals on the 29th of June and gone out to sea, returned in search of her consort, and took the survivors safely on board. After this great misfortune and fortunate deliverance, Capt. Wood abandoned the pursuit of the success of which he had been so sanguine a few months before, and on the very next day the "Prosperous" sailed for England, where she arrived on the 23d of August.

KNIGHT, BARLOW AND VAUGHAN.

The fate of Wood's expedition in 1676 very naturally dampened not only his own ardor but that of the English people for the discovery of the Northeast Passage; and indeed, his was the last attempt under English auspices in that direction. The burden of searching for the Northwest Passage had been officially laid on the Hudson's Bay Company in their charter of 1670, and the rest of England was virtually debarred from trespassing. After the manner of monopolists, the company seem to have interpreted their charter stringently as to privileges, and loosely as to obligations. In 1719 the governor of their trading colony at the mouth of the Nelson River was James Knight. He was almost eighty years of age, or old enough to have gone out with their first colony in 1670. He was now at least at the head of affairs, and apparently had been in those regions some years. He had learned from the natives that at some distance to the north and on the bank of a navigable river was to be found a rich mine of copper. This information stimulated him to undertake a voyage of discovery, and he applied to the Company for the use of two ships for that purpose. Preferring the diligent prosecution of the fur trade, they declined; but Knight, who apparently had been awakened to a sense of duty by his desire to find copper, now reminded them of the obligation imposed by their charter to institute voyages of discovery, and to make the reminder effective, threatened an appeal to the king's ministers.

The company finally yielded to Knight's peculiar powers of persuasion, and fitted out two vessels which were placed at his disposal. They were called the "Albany" and "Discovery," and were respectively under the immediate command of George Barlow and David Vaughan.

Knight, with his captains and crews, sailed in the summer or autumn of 1719, "by God's permission to find out the Straits of Ainan, in order to discover gold and other valuable commodities to the northward." Having won his point, Knight seems to have cared as little about the Northwest Passage as his employers. The ships never returned. In 1722 the "Whalebone" was dispatched under Capt. Scroggs to search for Knight and his companions. They sailed from Churchill River, in Button's Bay, to the northward; but in his report Scroggs made no mention of having instituted any search whatever for the lost navigators or for the Northwest Passage. But he brought back confirmation of the reports about copper. He "had seen two northern Indians, who told him of a rich copper mine somewhere in that country, upon the shore, near the surface of the earth; and they could direct the sloop so near as to lay her side to it and be soon loaded. They had brought some pieces of copper to Churchill that made it evident that there was a mine thereabouts. They had sketched out the country with charcoal before they left Churchill, and so far as they went, it agreed very well."

Nothing was heard of Knight or his comrades until the overland exploring expedition of Samuel Hearne, under the auspices of the Hudson Bay Company, in 1769, just fifty years after they had set out. Hearne gleaned the following account of them from the Esquimaux of Marble Island:

"When the vessels arrived at this place, it was very late in the fall (of 1719), and in getting them into the harbor, the largest received much damage; but on being fairly in, the English began to build a house, their number at that time seeming to be about fifty. As soon as the ice permitted in the following summer (1720), the Esquimaux paid them another visit, by which time the number of the English was very greatly reduced, and those that were living seemed very unhealthy. According to the account given by the Esquimaux, they were very busily employed, but about what they could not easily describe; probably in lengthening the long boat, for at a little distance from the house there was now (1769) lying a great quantity of oak chips, which most assuredly had been made by carpenters.

"A sickness and famine occasioned such havoc among the English that by the setting in of the second winter, 1720, some of the Esquimaux took up their abode on the opposite side of the harbor to that on which the English had built their houses, and frequently supplied them with such provisions as they had, which chiefly consisted of whale's blubber, and seal's flesh and train oil. When the spring advanced, the Esquimaux went to the continent; and on their visiting Marble Island again, in the summer of 1721, they found only five of the English alive, and those were in such distress for provisions that they eagerly ate the seal's flesh, and whale's blubber quite raw as they purchased it from the natives. This disordered them so much that three of them died in a few days; and the other two, though so very weak, made a shift to bury them. Those two survived many days after the rest, and frequently went to the top of an adjacent rock, and earnestly looked to the south and east, as if in expectation of some vessels coming to their relief. After continuing there a considerable time together, and nothing appearing in sight, they sat down close together and wept bitterly. At length one of the two died, and the other's strength was so far exhausted that he fell down and died also, in attempting to dig a grave for his companion. The skulls and other large bones of these two men are now (1769) lying above ground, close to the house. The longest liver was, according to the Esquimaux' account, always employed in working iron into implements for them; probably he was the armorer or smith."



CHAPTER XIII.

ARCTIC VOYAGES OF THE RUSSIANS — VOYAGE OF THE COSSACK DESHNIEV—CONQUEST OF KAMCHATKA—ATTEMPTED REDUCTION OF THE TCHUKTCHIS.

The solution of the question that had so long pressed on the minds of the natives of Western Europe would have been of the utmost importance to Russia, if that state had been in a condition to engage in the commerce of the East. But the Northeast Passage was too big a question, and its discovery too great an enterprise for the feeble Russia of three centuries ago. She did not even feel an interest in maritime expeditions until the advent of Chancellor, in 1554, showed her a way to obtain West European goods without having to receive them through her rivals and enemies, the Poles. Even as late as the beginning of the seventeenth century nothing was known of the Arctic regions of Siberia east of the Yenisei River. The country beyond had doubtless been often traversed by companies of Russians analogous to what the French in Canada had named forest couriers or wood rangers, that is, private adventurers in search of furs and game. But such information as these were able to glean remained scattered, and had never been collected so as to be made available to the public, or serve the interests of geography or commerce.

It was in 1646 that the first Russian voyage of exploration in the Arctic was made, and that was simply a coasting voyage, eastward from Kolyma, by private adventurers. They found a clear channel between the land and the ice, which was firmly grounded on the shelving coast, leaving room for their small vessel to ply along under sail. After sailing two days they anchored in a bay and became acquainted with a native tribe, the Tchuktchis (Chookchees), a branch of the Esquimaux race. Neither party understood the language of the other; but they began to

traffic after the manner described by Herodotus in relation to the barbarous tribes of Africa. The Russians displayed their wares upon the strand, and withdrew; the Tchuktchis took what they wanted, leaving sea-horse teeth, carved and whole, in exchange. These the Russians gathered up and returned home.

In 1648 seven vessels left the Kolyma, under the command of Semoen Deshniev, a Cossack, to discover the river Anadir. Four of the seven vessels were soon lost, but one or more of the others went through what is now Behring's Strait, or more probably were hauled across the promontory, for they reached the mouth of the Anadir, in the gulf of the same name, south of Behring Strait, on the Asiatic side. Deshniev's narrative begins with the great cape of the Tchuktchis, which is supposed to be Cape East in Behring Strait. "It is situated," says Deshniev, "between the north and northeast, and turns circularly toward the river Anadir. Over against the cape are two islands, upon which were seen some men of the Tchuktchi nation, who had holes pierced in their lips, through which were stuck pieces of the teeth of the sea-horse"—evidently American Esquimaux. Two of the three remaining vessels were either lost in making the voyage or left behind before getting to the strait, for Deshniev arrived with only one, and this was wrecked a little south of the river's mouth. The crew of his vessel consisted of twenty-five men, and they now proceeded to return overland. They wandered ten weeks through a woodless and uninhabited country, until they came to a river on the banks of which they encountered a small tribe called Anauli, whom they, notwithstanding their own desolate condition, did not hesitate to exterminate—a piece of wanton cruelty which very deservedly added to their own distress. This discovery led to considerable traffic with the barbarous tribes north of Kamchatka, which, however, was mostly carried on through the interior.

In 1696 these Russian or Cossack adventurers penetrated south to the Kamchatka River, plundering the native villages under the pretext of collecting tribute; and in 1697 Vladimir Atlassov, a Cossack officer, undertook the conquest of Kamchatka. He traveled overland from Irkoutsk to the Anadir, but states from hearsay or observation that be-

TEHUKTCHI INDIANS BUILDING A HUT.



tween the Kolyma and Anadir there are two great capes, the west of which, probably what is called Cape North, could never be doubled by any vessel, because of the quantity of ice that lines its shores at all seasons of the year. The Kamchadales were easily conquered, and before 1706 the more warlike Tchuktchis shared the same fate. The former are described as smaller than the latter, with small faces but great beards. They lived underground in winter, and in cabins raised from the ground on posts, in summer. These cabins were reached by ladders. They buried their meats in the earth, wrapped in leaves, until it was quite putrid. For cooking it, they used earthen or wooden pots, heating the water by throwing into it stones which they had made red-hot. "Their cookery smelt so strong," says Atlassor, "that a Russian could not support the odor of it."

The next Russian navigator to the Arctics was Taras Staduchin, who left the Kolyma a few years later, to explore the Great Cape of the Tchuktchis, which, however, he was unable to reach by water. Abandoning his vessel, he crossed the Isthmus at its narrowest point, leaving the land to the north and east, as far as Behring Strait, unexplored. Russian activity was now mainly directed in those northeastern regions, to overland military expeditions for the more complete subjugation of the rude tribes in that section of Siberia.

In 1711 a Russian embassy was sent to the Tchuktchis to demand hostages, which were refused, and it was not until 1718 that they formally made their submission at the Russian fort, which had been erected at the mouth of the Anadir. The chief of the embassy of 1711, Peter Sin Topov, a Cossack, gave a description of the people, their American neighbors and the country, of which the following is an abstract:

The Tchuktchi "Nos" or Cape, is destitute of trees. On the shores near the Nos were found sea-horse teeth in great numbers. The Tchuktchi, in their solemn engagements, invoked the sun to guarantee their performances. Some among them had flocks of tame reindeer, which obliged them often to change their place of residence; but those who had no reindeer inhabited the coasts on both sides of the Nos, near banks where the sea-horses were wont to come, on which with fish

they mostly subsisted. They had habitations hollowed in the earth. Opposite to the Nos, they said, an island might be seen at a great distance, which they called the Great Country, and which unquestionably meant America. The inhabitants of that land pierced holes through their cheeks, in which they inserted large ornaments made of pieces cut from the teeth of the sea-horse. These people had a different language from the Tchuktchi, with whom they had been at war from time immemorial. They used bows and arrows, as do the Tchuktchi. Popov saw ten men of that country, with their cheeks pierced as described, who were prisoners with the Tchuktchi. In summer they could reach that land in one day in their boats or canoes, which are made of whalebone, covered with sealskins; in winter also in one day, with good reindeer, and no obstruction or accident to their sledges or teams. At the Cape were to be seen no wild land animals but wolves and red foxes; but on the other land, that is, in America, there were many more, as sables, martens, bears, otters, and many kinds of foxes; and the inhabitants had large herds of tame deer. Popov computed both classes of the Tchuktchi at over 2,000 adult males, and the Americans from what he learned, at about 6,000. The Tchuktchi reckoned the journey from the Cape to Anadir at ten weeks with laden reindeer, provided no storm of wind or snow should arise. They mentioned also a smaller island about halfway between the Cape and the Great Country—probably St. Lawrence or Clark Island—from which the Great Country might be seen on a clear day.



CHAPTER XIV.

VOYAGES OF BEHRING—START FOR KAMCHATKA RIVER—DISCOVERY OF BEHRING'S STRAIT—REACH LAND ON AMERICAN SIDE—INVESTIGATIONS OF STELLER—FRIGHT OF A NATIVE AT THE TASTE OF BRANDY—REDUCED BY SICKNESS—BEHRING BECOMES DISABLED — THE SHIPS' COMPANY DIVIDED — A STRANDED WHALE — DEATH OF BEHRING.

It is clear that the Russians were in a fair way to reach America by sea or land, as the case might prove to be, in the neighborhood of what soon became known as Behring Strait. Just before his death in 1725, the greatest of the Russian monarchs, Peter the Great, occupied himself with the details of an Arctic voyage of discovery, the chief object of which was to ascertain definitely whether or not America and Asia were divided by water at the extreme north. His instructions were these:

1. That one or two ships should be built at Kamchatka, or elsewhere on the Eastern Ocean.
2. That when constructed and fitted out they should proceed northward and ascertain if there was a waterway between the continents.
3. To ascertain if there were in those parts any harbors or trading-posts belonging to Europeans.
4. That another expedition should proceed from Archangel to the Arctic Sea, and move eastward to meet, if practicable, the one moving north from the coast of Kamchatka.
5. To keep a record of what should be discovered, which was to be brought by the commander to St. Petersburg at the close of the voyage.

The expedition from Archangel proved unfruitful. One of the two ships was soon hemmed in by the ice, and was unable to advance. The other started on the voyage but was lost among the ice, and was never heard of.

The Eastern expedition, which was not ready until 1728, was put under command of Vitus Behring, a Dane by birth, but for some years in the service of Russia, where he had risen to the rank of commodore. A Russian, Alexis Tchirikov, was intrusted with the command of one of the vessels. Three years were consumed in preparation. Behring, with his officers, crews and ship-builders, proceeded overland to Okhotsk, where he determined to build one of the vessels, in which to convey the men and supplies to Kamchatka, where he was to build the other.

On July 14, 1728, everything being in readiness they set sail from Kamchatka River. About the 4th of August, when in latitude $64^{\circ} 30'$, eight Tchuktchis approached in one of their leather boats, and sent forward one of their number, on sealskins filled with air, to demand who they were, whither they were going, and what they wanted. They pointed out to the Russians the island which these afterward called the Isle of St. Lawrence, and which has since been named Clark's Island. Satisfying his questioners that his designs were pacific, Behring proceeded on his voyage and reached $67^{\circ} 18'$ without obstruction, whence he rightly inferred that the continents were divided by water, because no land was visible to the north or east. He had sailed through the strait which was afterward called after his name. He made a second voyage in 1729, in the same waters, but without obtaining any additional information. He does not seem to have seen the coast of America on either voyage.

In 1731 a vessel was dispatched under Krupishev from Kamchatka River to co-operate with a land force for the subjugation of the Tchuktchis. A gale of wind forced the ship from the point of land where Behring's voyage had terminated; and being driven east, Krupishev found an island, and afterward a country of great extent. A man came aboard from the shore in a canoe, whom they understood to say that he belonged to a great country abounding in wild animals and forests. The Russians coasted it for two days, when another storm coming on, they directed their course homeward to Kamchatka. This voyage left no doubt of the discovery by Behring of the strait dividing the continents. Himself and officers received many distinctions, and several exploring

THE
KODAMA
HOUSE



expeditions were projected. As before, the more important were two: The Western was from Archangel along the northern coast to the eastward; but this and many successive attempts in the same direction failed, mainly because the promontory and cape called Taimur, extending to 78° and encompassed by an immense ice barrier, constituted an insurmountable obstacle. The other, which was intrusted to Behring, was the continuance of his former enterprise, with the specific purpose of ascertaining the distance from Kamchatka to America in the same parallel.

All preparations being duly made, Behring and his former lieutenant, Tchirikov, set sail in the St. Peter and St. Paul from Avatcha Bay in Kamchatka, June 4, 1741. Sixteen days later the St. Paul, under Captain Tchirikov, was separated from the Commodore's vessel in a gale, and a fog arising soon after, they entirely lost sight of each other for the whole season. July the 15th Tchirikov found himself near the mainland on the American side, in latitude $55^{\circ} 36'$. He cast anchor and sent out the long boat with orders to make a landing where they could on the rock-bound shore. Several days having elapsed without their return, he grew alarmed and sent his other boat in search. But the same fate doubtless awaited both—probably destruction by the natives. Neither was ever heard from, and Tchirikov lost seventeen men and both his boats. Some Americans made from the shore in their canoes some days later and surveyed the ship from a distance; but they did not dare approach her. Had they been kindly disposed they probably would not have held aloof. It is almost certain that they had killed or taken captive the seventeen Russians. Tchirikov now held a council of his remaining officers, and it was deemed advisable to return. The St. Paul was headed for Kamchatka, where she arrived in safety early in October. Here the thoughtful Tchirikov made preparations for the reception of Behring and his crew, should disaster overtake them.

Meanwhile Behring's ship had fallen in with the continent in latitude $58^{\circ} 28'$, on the 18th of July. The prospect was grand, but gloomy. High mountain ranges, ridge beyond ridge, covered with snow, stretched away to the utmost limit of vision. Towering over all

15,000 feet high, rose the lofty peak which George William Steller, the German naturalist and physician of the expedition, named Mount St. Elias, by which it is still known. On the 19th they anchored in a safe bay near the small island of Kaiak, in what is called Behring Bay, about latitude $59^{\circ} 45'$. The capes on either hand they named St. Elias and Hermogenes.

July 20 a boat was sent ashore for fresh water, and Steller with difficulty obtained permission to accompany the crew with his Cossack attendant. On landing, Steller struck boldly into the interior, and at the distance of a mile he discovered the hollowed trunk of a tree, in which the natives had but a few hours before cooked some meat with red hot stones, after the manner of the Kamchadales, whence he inferred that they were probably of the same stock, and that the two continents must necessarily approach each other to the north, as the frail canoes of the natives were not fit to traverse a wide expanse of water. At the distance of another mile he found a cache or cellar, which he uncovered, and found full of smoked fish, and a few bundles of the inner bark of the larch, which in case of necessity serves as food throughout all Siberia. There were also some arrows, carefully smoothed and dyed black, which were superior to those of the Kamchadales. Steller now sent back his servant to obtain an extension of time and a small escort to continue his exploration. In his absence he ascended a hill and saw smoke rising in the distance, which satisfied him that some natives could soon be found. But Behring was inexorable for his return, and Steller could only obey, under penalty of being left behind. In the bitterness of his disappointment he was excusable for giving utterance to the sarcasm that the Russians traveled a great way at great expense to carry a little American water to Asia. Steller took away samples of what he had found, leaving some knives, trinkets and tobacco in exchange.

On the 21st, Behring, who had hitherto almost constantly kept his cabin through illness, appeared on deck, gave orders to weigh anchor, and return as directly as might be to Kamchatka. They soon found that the coast trended southwest, and it was with the utmost difficulty that they were able to extricate the ship from the labyrinth of islands which

line the peninsula of Alaska. Six weeks later, on the 3d of September, they had an adventure with a few natives. Seeing nine of them fishing on an island—probably one of the smaller outlying islands of the Aleutian group—they undertook to open communication with them. By signs each party invited the other to approach; finally three Russians, with the Kariak interpreter, rowed ashore, but the North-Siberian found himself among strangers to his language, and could render no assistance. The Americans, however, seemed to like their Asiatic brother, evidently recognizing in him a nearer relationship than in his European companions. The leader of the aborigines was invited aboard the Russian boat, and as a token of confidence complied. The hospitable Russians now handed him a glass of brandy, the taste of which so appalled the unsophisticated native, that he exhibited the greatest alarm and an evident anxiety to be put ashore among his fellows. This was done in all haste; and the Russians dreading the spread of the panic among his companions, rowed for the ship, leaving the Kariak among his new-found friends. He, however, set up such a lamentation and made such piteous signs not to be abandoned, that the Russians concluded to have recourse to a stratagem for his recovery. They fired two shots in the air, which, reverberating from the hills, so affected the imaginations of the astonished natives, that they offered no hindrance to the departure of the interpreter, who, hastening to the shore, was soon aboard the vessel. The next day the natives presented themselves in their canoes at the side of the vessel, bearing the olive branch of peace, that is, a rod ornamented with feathers, and heartily cheered the departing strangers, who had already weighed anchor, and were being rapidly borne away on the freshening breeze.

Toward the close of September, they encountered one of those fierce storms, exceptional even in northern latitudes, lasting seventeen days, and surpassing in violence anything their pilot had ever seen. He had been at sea, boy and man, for fifty years, and of all the storms he had witnessed, this was the worst; and very severe it proved to Behring and his crew. They were driven south to about the latitude of the northern line of what is now the United States, exclusive of Alaska. They discussed among themselves whether to seek refuge on the American coast,

or attempt to return to Kamchatka. The latter course was determined on. Meanwhile scurvy had broken out among the men, too long confined to the use of salt provisions, and exposed to the excessive severity of the weather. Almost every day they lost one of the crew by disease; and hardly enough were left in health to manage the vessel. Behring himself had been for some time so ill as to take no active part in the management of the vessel. The helmsman was so sick that he required to be supported to his post; and when no longer able to steer he was relieved by one nearly as weak as himself. So that during the month of October, the vessel was driven along almost entirely at the mercy of the wind. The men lost courage and gave themselves up to despair. The nights grew longer, but the more imminent became their danger, the more helpless and hopeless became the crew. When requested to do their duty, they were scarcely able to undertake it, and could hardly keep their legs. They pronounced it impossible to save the ship or themselves; and severity of discipline was of no avail, for they preferred even death to the sufferings they endured. The officers of the ship whom the necessities of perpetual oversight had kept busy and active, escaped disease, and were now the only hope of salvation. They urged the less despairing of the crew to furnish such assistance as they could, and thus kept the ship still to the west toward Kamchatka.

Finally on the fourth of November, in about latitude 55° , at eight o'clock in the morning, land hove in sight, but at a considerable distance, for they could only see the snow-clad mountains. They steered for the inhospitable shore all day, and at night held back to avoid being wrecked. On the morning of the fifth, a great wave threw the ship over a reef and landed her, disabled, in smooth water, after they had lost two anchors in attempting to save her from running on the rocks. They now put out their third anchor, and the shattered ship rode at ease in the sheltered cove.

A few of those who were most able, went ashore under the command of Waxall, on whom the direction of the ship and crew had devolved, on Behring becoming entirely disabled. They found the country barren and covered with snow; but had the good fortune to discover a stream

of excellent water. House, hut, or shelter of any kind, could not be found, except sand holes, over which they spread some sails to make them habitable for the sick. On the eighth some were landed, and on the next day Behring was taken ashore and provided for with special care in one of the excavated sand holes. Six days later all were provided for on land as well as circumstances would permit. The interior of the land swarmed with blue and white foxes, which were so bold as to convince the Russians that they had fallen on an uninhabited region. Sea otters were also seen, which proved they were not on the coast of Kamchatka, from which these animals had disappeared. Killing some of these they found the flesh tough and unpalatable, but Steller, the physician, urged its consumption, however unpleasant, as an antidote to the scurvy; and nearly all the crew, except those who were sick on landing, were saved from disease by his persistence. "On all sides," says Steller, describing the experiences after landing, "nothing was to be seen but misery. Before the dead could be buried, they were mangled by the foxes, who even ventured to approach the helpless invalids who were lying without cover on the beach. Some of these wretched sufferers complained bitterly of the cold, others of hunger and thirst—for many had their gums so swollen and ulcerated with the scurvy as to be unable to eat.

"On November the 13th, I went out hunting for the first time with Messieurs Plenisner and Betge; we killed four sea otters, and did not return before night. We ate their flesh thankfully, and prayed to God that he might continue to provide us with this excellent food. The costly skins, on the other hand, were of no value in our eyes; the only objects which we now esteemed were knives, needles, thread, ropes, etc., on which before we had not bestowed a thought. We all saw that rank, science, and other social distinctions were of no avail, and could not in any way contribute to our preservation; we therefore resolved, before we were forced to do so by necessity, to set to work at once. We introduced among us five a community of goods, and regulated our house-keeping in such a manner as not to be in want before the winter was over. Our three Cossacks were obliged to obey orders, when we had decided upon something in common; but we began to treat them with

greater politeness, calling them by their names and surnames, and we soon found that Peter Maximovitch served us with more alacrity than formerly Petrucha [Peterkin].

“ November the 14th the whole ship’s company was formed into three parties. The one had to convey the sick and provisions from the ship; the second brought wood; the third, consisting of a lame sailor and myself, remained at home—the former busy making a sledge, while I acted as cook. As our party was the first to organize a household, I also performed the duty of bringing warm soup to some of our sick, until they had so far recovered as to be able to help themselves. The barracks being this day ready to receive the sick, many of them were transported under roof; but for want of room, they lay everywhere on the ground, covered with rags and clothes. No one could assist the other, and nothing was heard but lamentations and curses—the whole affording so wretched a sight, as to make even the strongest heart lose courage.

“ On November 15th all the sick were at length landed. We took one of them named Baris Sand into our hut, and by God’s help he recovered within three months. The following days added to our misery, as the messengers we had sent out brought us the intelligence that we were on a desert island, without any communication with Kamchatka. We were also in constant fear that the stormy weather might drive our ship out to sea, and along with it all our provisions, and every hope of ever returning to our homes. Sometimes it was impossible to get to the vessel for several days together, so boisterous was the surge; and about ten or twelve men, who had hitherto been able to work, now also fell ill. Want, nakedness, frost, rain, illness, impatience, and despair, were our daily companions.”

Among the provisions on which they had to rely in emergencies was a dead whale thrown on the coast of the island in a storm. This with grim jocularity they called their magazine. Behring died on the 9th of December, exactly four weeks after being landed. It might almost be said that he was buried alive. In the sandpit in which he was housed the loose sand had gradually piled up around him until he was

STRANDED WHALE.



more than half covered. He would not allow it to be removed, but kept gathering it up, under the conviction that it helped to keep him warm and prolong life. When he died it became necessary to unearth him before he could be decently buried. He was respectfully interred on the island and in sight of the sea, which were thenceforth to bear his name. He was only in his sixty-second year, and might have survived the shipwreck had he not been enfeebled by disease arising from exposure and the want of fresh provisions. He had been thirty-six years in the Russian navy, which he entered in 1705. In 1707 he had been made lieutenant, and in 1710 captain. His last expedition failed of satisfactory results, no doubt through his long continued illness. Beyond his prime man lacks that vital power which enables him to withstand the hardships of such adventures. Three weeks later the St. Peter was wrecked in sight of the survivors. Her cable gave way in a violent storm, and she was driven on the rocks. There was no longer any hope of using her on the voyage to Kamchatka in the spring, and to add to their misfortune a considerable part of their provisions were spoiled by the sea water.

In March, 1742, the sea otters disappeared from those waters. They had killed 900 of them and saved the skins. Of these about 300 eventually came into the possession of Steller, by barter and through the generosity of the sick, who felt deeply indebted to him for his services so disinterestedly rendered in their hour of need. Thirty of the crew died on the island; but nearly all had been sick before landing. Forty-five survived. Seals, sea lions and sea horses now took the place of sea otters on the coast of Behring's Island, and their flesh was much more palatable. A walrus weighing 800 pounds was found sufficient for a fortnight's consumption. The flesh resembles beef, and that of the young is as tender as veal. The health of the men now improved rapidly, and their great concern was to grow strong enough for the work of deliverance which they were to undertake in the summer.

Waxall now began to turn their attention to the task of getting ready. This he did with commendable discretion. A virtual democracy had sprung from their necessities, and one had as good right to his opinion as another. Their projects for escape were of course various, but they

were gradually induced to concur in Waxall's design of breaking up the old ship and constructing a new but smaller one from her timbers, sufficiently large to convey all the survivors and the necessary provisions to Kamchatka.

The month of April was consumed in preparations; and on the sixth of May they began to build the new boat or ship. By the first of June the timbers were ready for the planks. She was forty by thirteen feet; had but one mast, and one deck.

"On the 14th, in the morning," says Steller, "we weighed anchor, and steered out of the bay. The weather being beautiful, and the wind favorable, we were all in good spirits, and as we sailed along the island, we pointed out to each other the well-known mountains and valleys which we had frequently visited in quest of game, or for the purpose of reconnoitering. Toward evening we were opposite the furthest point of the island, and on the 15th, the wind continuing favorable, we steered direct toward the bay of Avatcha. About midnight, however, we perceived to our great dismay, that the vessel began to fill with water from an unknown leak, which in consequence of the crowded and overloaded state of the vessel, it was extremely difficult to find out. At length, after the lightening of the ship, the carpenter succeeded in stopping the leak, and thus we were once more saved from imminent danger."

On the 25th they sighted the longed-for Kamchatka, entered the Bay of Avatcha on the 26th, and anchored in the harbor of Petropaulovsky on the 27th, where they found that provision had been kindly made for their anticipated wants through the forethought of Capt. Tchirikov.

Russian expeditions to Arctic seas now fell into the hands of merchants and adventurers; and were prosecuted from Archangel as whaling voyages, and in the east, from Petropaulovsky and Okhotsk, as ventures in the fur-trade, in which they built up a profitable commerce with China and Japan.

CHAPTER XV.

**SWAINE STARTS FROM PHILADELPHIA—EXPLORATION OF LABRADOR
—ARCTIC EXPLORATION BY HEARNE—INSTRUMENTS DESTROYED
BY WIND—MALTREATMENT OF ESQUIMAUX—ARCTIC VOYAGE OF
PHIPPS—REACHES SPITZBERGEN.**

In the spring of 1754 Capt. Charles Swaine left the port of Philadelphia, in Pennsylvania, to search for the Northwest Passage. He was in command of the schooner Argo; and first encountered ice off Cape Farewell in June. Leaving the eastern ice he again fell in with the western ice in latitude 58° , and cruised to the northward to 63° , to clear it, but could not; it then extended to the eastward. Returning southward he met two Danish vessels bound to Ball River and Disco Island, up Davis' Strait, which had been in the ice fourteen days off Cape Farewell, and had then stood to the westward. They assured Swaine that the ice was fast to the shore all above Hudson's Strait to the distance of forty leagues out, and that there had not been such a severe winter as the last, these twenty-four years that they had been engaged in that trade. They were then nine weeks from Copenhagen. The Argo, finding she could not get around the ice, pressed through it and got to the mouth of Hudson's Strait on the 26th of June. She reached Resolution Island, but was forced back by vast quantities of driving ice, and got into clear sea on July 1st. Cruising along the border of the ice, seeking an opening to get through it, she met on the 14th four vessels of Hudson Bay endeavoring to get in, and continued with them till the 19th, when they parted in thick weather, in latitude $62^{\circ} 30'$. The thick weather lasted till August 7. The Hudson's Bay men before they were separated from the Argo computed the distance to the western coast of Hudson's Bay at forty leagues.

The Argo ran down the ice from about 63° to $57^{\circ} 30'$, and

after repeated attempts to enter the Straits relinquished the vain endeavor, the more as the season for making discovery on the western side of the bay would be over before they could hope to reach it. Swaine now directed his vessel to the coast of Labrador, and explored it perfectly to latitude 54° . He found no less than six inlets, all of which he thoroughly explored, making an excellent chart of the coast, and ascertaining all he could of the soil, produce, and people of Labrador. He thought it much like Norway, and satisfied himself there was no water-way across it to Hudson's Bay. It had been conjectured that such a route could be found, but Swaine's careful survey settled that point. He found there was a high mountain range which traversed the land from north to south, about fifty leagues inland. In one of these harbors they found a deserted wooden house with a brick chimney which they judged had been built by Englishmen, as appeared evident from sundry relics left behind. Afterward in another of the inlets they met Captain Goff in a bark or snow—so called from the Low-German snau, or snout—from London. He informed them that the same vessel had been there in 1753, and had landed some Moravian brethren who had built the house, intending to remain there. But the captain and six of his men had been artfully coaxed away by the natives under pretence of traffic, to some distance in their boat, and unarmed. After waiting their return for sixteen days in vain, the remainder concluded to sail for England, accompanied by the Moravians, who were necessary to work the vessel, and were discouraged in their benevolent undertaking by the unexpected treachery of the natives. Part of Goff's business on this voyage, he said, was to learn what he could of the fate of these men. As a pleasant addition to Swaine's good fortune, who seems not to have lost a man or any part of his ship's equipment, he discovered a fine fishing-bank about twenty miles off shore and stretching 57° to 54° . Vessel and crew arrived in safety at Philadelphia about the middle of November.

In 1772 the brig Diligence was dispatched by a company of private gentlemen of Virginia to search for the Northwest Passage. She was placed in charge of Captain Wilder, who followed the route of Swaine, but succeeded in entering Hudson's Bay, the season being more favora-

ble. The Diligence plied about the broad expanse of the great bay, especially to the north and west, which were now the accredited points of search for the Northwest Passage. They were finally driven back by the ice, and retreated through Hudson's Strait to Davis' Strait, which they ascended to the latitude of Disco Island in $69^{\circ} 11'$, whence they returned to Virginia.

ARCTIC EXPLORATION BY HEARNE.

Samuel Hearne had entered the English navy as a midshipman in Captain Hood's vessel, at the age of eleven. At the close of the French war in 1763, he took service under the Hudson's Bay Company as quartermaster, at Fort Churchill. In 1768 he evinced special ability in his exploration of the northern coast of Hudson's Bay, and the improvement of the fisheries in that quarter. The same year the Indian story of copper mines to the north, which had lured Knight to destruction in 1719, and which had been repeated to Captain Scroggs in 1722, was put beyond all question by some rich specimens of ore brought by Indian traders to Fort Churchill. Hearne was now sent out with a twofold commission, to search for the Northwest Passage and the mines of copper. He left Fort Churchill November 6, 1769, accompanied by two white men and some Indians. When he had proceeded about two hundred miles his provisions began to fail, and the native guides deserted him, when he was obliged to return. In the beginning of February, 1770, being again ready to start, he resumed his journey, taking with him no white men and only five Indians. He had found that the natives ridiculed his two white companions because of their inability to endure the hardships of the trip as well as they could. Some white men have been known to pride themselves on similar qualifications. When they had gone about five hundred miles they began to suffer great distress from exposure to the severity of the weather, and the scarcity of provisions.

"It was," says Hearne, "either all feasting or all famine; sometimes we had too much; seldom just enough; frequently too little; and often none at all. It would be only necessary to say that we have fasted,

many times, two whole days and nights; twice, upward of three days, and once, near seven days, during which we tasted not a mouthful of anything, except a few cranberries, water, scraps of old leather, and burnt bones." Finally, in August, he arrived among a tribe of friendly Indians, in latitude $63^{\circ} 10'$ and longitude $10^{\circ} 40'$ west from Fort Churchill, where he proposed to winter. One day a gust of wind upset his quadrant, breaking it to pieces, and the brave explorer picked up his effects and started back to the English settlement, notwithstanding all the privation he had undergone on the way out. Equipped once more at Fort Churchill, he set out on the 7th of December, accompanied among the rest by an intelligent Indian named Motaunabi. They proceeded this time in a less northerly direction, and in latitude 60° . After having traveled about 600 miles, they came to a lake; here they built a canoe, and pushed northward, by a chain of lakes and streams, until, on the 13th of July, 1771, they struck the Coppermine River, which he descended to its mouth in the Arctic Ocean, or rather in Coronation Gulf, one of its inlets, in latitude $68^{\circ} 30'$. Meanwhile, Hearne's band of Indians had been increased by the accession of some tramps of the forest, friendly to each other, but all hostile to the Esquimaux. Seeing a small encampment of their detested enemies on the bank of the great river, they attacked them, on the 17th of July. "Finding all the Esquimaux quiet in their tents," says Hearne, "they rushed forth from their ambuscade, and fell on the poor, unsuspecting creatures, unperceived till close to the eaves of their tents, when they soon began the bloody massacre, while I stood neuter in the rear." They spared neither age nor sex, and of the twenty or more inmates of the hut, but few escaped. An old woman whom they found peacefully fishing was tortured by having her eyes plucked out before she received her death blow. A young girl sought the protection of Hearne, which he was powerless to give; and the miscreants, soon after their horrid work of slaughter, "sat down," says Hearne, "and made a good meal of fresh salmon," the fruits, perhaps, of the old woman's industry. The "Arctic Ocean," as described by Hearne, was full of islands and shoals, as far as he could discern with a good telescope. On the 30th of June, 1772, after an absence of one year and seven

months, lacking one week, Hearne arrived in safety at Fort Churchill, of which he was made governor, in 1775. On its capture by a French squadron, under Perouse, in 1782, he returned to England, where he died ten years later, in his forty-eighth year. His "Voyage to the Coppermine River," was published in 1795.

ARCTIC VOYAGE OF PHIPPS.

Since the loss of Knight in 1719, there had been by common consent a virtual abandonment of voyages of exploration in the Northwest. At intervals some slight revival of interest arose, but only to be damped by repeated failures. In 1742 Captain Middleton discovered Wager "River" or Bay, opening westward from Rowe's Welcome, and for a time he must have fancied he had made the great discovery, but it was soon found to be a land-locked inlet into an uninhabited wilderness. A few years later, in 1746, Moore and Smith, after a fruitless search in the same direction, pronounced the quest of "a Northwest Passage as chimerical as Don Quixote's projects." But now the successes of Captain Cook and the growing power of England gave a fresh impetus to voyages of discovery on a scale commensurate with her greatness. It has not escaped the notice of our reader how insignificant and paltry were the outfits of the early English navigators. He has also doubtless divined the reason. While under more arbitrary governments such enterprises were usually controlled by the state, and inaugurated with the eclat and fullness of equipment which are wont to characterize government ventures, in England they were almost entirely in the hands of private merchants. Occasionally the use of one of the King's ships was obtained, but even then the equipment was supplied by private persons. This was in accordance with the genius of free institutions and constitutional liberty; and the Englishman felt more pride in the growth of freedom than in big ships. The necessities of war had just brought the crown a navy worthy of the name, and the succeeding epoch of peace left it at the disposal of the ministers for the furtherance of the pursuits of science and commerce. The British government, full of anticipation of the glory to be achieved among the nations of the earth

by the discovery of the Northwest Passage, the dream of her merchants for nearly three centuries, proceeded first to dispatch an expedition due north to investigate the possibilities of that route.

On the 25th of May, 1773, Captain Constantine John Phipps, who was raised to the peerage as Lord Mulgrave in 1784, received formal instructions for a voyage to the North Pole, or as far toward it as possible. He was to prosecute the voyage as nearly as ice and other obstacles would permit, on a meridian. His observations were to be such as might prove useful to navigation, and promote science. Should he reach the Pole and find open sea beyond he was not to suffer himself to go on, but was to get back to the Nare before winter. A discretionary clause was added, empowering him to follow his best judgment in such unforeseen circumstances as might arise. He was to command the Racehorse, and to her was joined the Carcass under Capt. Lutwidge, who was subject to his orders, with the proviso that should evil befall the Racehorse he was to assume command of the Carcass.

They got fairly under way on June 4, and anchored in a small bay between Magdalena and Hamburgher Bays, off Spitzbergen, on July 4. On the 9th they were as high as $80^{\circ} 36'$, and were caught in the ice on the 31st. They forced their way southward through the ice, reaching Seven Islands' Bay, on the northwest coast of Spitzbergen, Aug. 6, and the Nare on Sept. 24. In 1774 Captain Phipps published a detailed account of this Arctic expedition under the title of a "Journal of a Voyage Toward the North Pole."



CHAPTER XVI.

COOK'S ENTERPRISE FOR DISCOVERING NORTHWEST PASSAGE—LEAVES PLYMOUTH—EXTENSIVE BARTER WITH NATIVES—ARRIVE AT SANDWICH ISLANDS—OUTRAGES OF THE HAWAIIANS—CAPT. COOK MURDERED—APPROVAL OF COOK BY ROYAL SOCIETY—CAPT. CLERKE TAKES CHARGE OF THE EXPEDITION—MARKET FURS IN CANTON.

Phipps' failure due north did not extinguish the hope of finding a route from the Atlantic to the Pacific in the northwest. The famous Captain Cook had won fresh laurels as a navigator in 1772, and had been awarded the Copley medal for his success in preserving the health of his men during his voyage around the world. His courage, sagacity and experience pointed him out as the man for the contemplated search voyage; and having volunteered his services he was gladly appointed to the command. His instructions were to proceed to the North Pacific, to commence his search on the northwest coast of America in latitude 65° , and to waste no time in instituting researches in lower latitudes. The Resolution and Discovery were speedily fitted out, and the latter placed under the subordinate command of Captain Edward Clerke. Bayley and Anderson, companions of his former voyage, accompanied Cook as astronomer and naturalist.

July 12, 1776, Captain Cook left Plymouth, England, and was joined by Captain Clerke in Table Bay, near the Cape of Good Hope, some weeks later. It was the last day of November before they left the Cape, whence they proceeded eastward through the Indian Ocean, passing Prince Edward's Island December 12, and reaching Kerguelen Land on the 24th. Here Cook rectified the mistake of the discoverer Kerguelen by ascertaining it to be an island, not a continent, and characterized it as the Island of Desolation. For three hundred leagues east of

Kerguelen they were so beset by fog that it was necessary to fire signal guns to avoid getting separated in the dark. They arrived at Adventure Bay on the south coast of Van Diemen's Land, now Tasmania, on the 26th of January, 1777, and in Queen Charlotte's Sound, New Zealand, on the 12th of February. On the 25th they proceeded northward, reaching Mangaia and Atioo, two of the Cook Islands or Hervey Archipelago, on the 29th of March. The season was now considered too far advanced to venture into unknown seas with the prospect of achieving anything important, and Captain Cook decided on further exploration in the tropics, postponing his northward trip until the following year. They spent nearly three months in peaceable intercourse with the natives of the Tonga and Feejee groups, to which Cook gave the collective name of Friendly Islands. On the 12th of August they arrived at Tahiti or Otaheite, one of the Society Islands, to the southeast of the Friendly Islands. On the 8th of December they again directed their course to the northward from Bolabola, the most northern of the Society group; and on the 18th of January, 1778, they discovered the islands of the Hawaiian Archipelago. Cook named these the Sandwich Islands, in honor of the first lord of the British admiralty, John Montague, Earl of Sandwich, the chief promoter of the voyage in which he was now engaged.

After a stay of several weeks Cook now directed his course for the mainland of America, reaching the New Albion of Drake, in latitude $44^{\circ} 33'$, on March 7. Coasting north, they arrived at Nootka Sound in latitude $49^{\circ} 35'$. The inhabitants were found clad in furs, which they offered for sale, and were civil to the strangers. They evinced an almost English appreciation of the rights of property, expecting pay for everything that was taken, even the wood and water necessary for the ships. They were acquainted with iron, but preferred brass, whence it came to pass that the sailors bartered all their buttons for furs. In latitude 59° the natives were found to resemble the Esquimaux of Hudson's Bay in language as well as in physical appearance; and were not so grasping in their dealings. In what has since been named Cook's Inlet they thought to have found a passage to the Northern Ocean, but found it penetrated only about 200 miles. Cook then sailed westward, and on the 9th of

August made the extreme northwestern point of America, to which he gave the name of Cape Prince of Wales, distant from the northeastern point of Asia, at Cape East, only thirteen leagues, as ascertained by him. They landed among the Tchuktchi, but did not tarry long, as they were anxious to push to the north before the close of the season.

On the 18th of August, in latitude $70^{\circ} 44'$, they came abreast of the ice, which they found six feet high on the edge, and extending as far as the eye could reach, an impenetrable mass, covered with walruses. Of these the sailors killed a considerable number, glad to exchange the monotony of salt provisions for the fresh but coarse flesh of these animals. Cook now concluded to turn from the impracticable Northern Ocean and turn his attention for a season to the further exploration of the Sandwich Islands. On the 26th of November they arrived at Mowee or Maui, an island of that group, which they had not before visited, in latitude $20^{\circ} 50'$, and on the 30th the large island of Owhyhee or Hawaii, which Cook spent seven weeks in circumnavigating and surveying. They finally anchored in Kealakeakua Bay, about the middle of January, 1779, and were visited by crowds of natives. The relations of visitors and visited, of civilized English and semi-barbarous Hawaiian, were mutually pleasant; nothing occurred to mar the harmony of their intercourse; and the opinions formed by each party of the other grew daily more favorable, as weeks of acquaintance passed into months, and the English still lingered on their hospitable shores. Captain Cook very justly felt that the failure to penetrate the Northern Ocean was more than compensated for by the discovery of these islands. "To this disappointment," says he, "we owed our having it in our power to visit the Sandwich Islands, and to enrich our voyage with a discovery, which, though the last, seemed in many respects to be the most important that had hitherto been made by Europeans throughout the extent of the Pacific Ocean."

Provisions were procured in abundance for the "floating islands," as the Hawaiians called them; and Cook was quite successful in salting a quantity of pork for sea stores. Finally he prepared to sail around the islands to make an accurate survey of the whole group, and weighed anchor on the 4th of September. But a storm arose soon after, which

survived, leaving the remainder of the Resolution and crew to defend the ship by every means possible. In the next instant the two chiefs, the former commandant of the native garrison, with four of their leaders or chiefs had descended from the heights. The crew now came in contact with the most terrible and impudent of the Hawaiians, and general massacre ensued between. A native boat was sent through the fleet of ships to bring down the king of the ship, which by an impudent name. The King, who was in company of the chief were roughly handled by a sailor, and on the return of this rebuked orange followed the boat of one of the Englishmen. Captain Cook hereupon determined to seize the king, Tegassoo, and hold him as a hostage for the good behavior of his people, and the return of the stolen property.

On the 14th of February, 1779, he landed with a body of armed marines to carry out this resolution. The king offered no resistance, but with his two sons peacefully accompanied the English to the shore, when the excited natives gathered in crowds and prevented the embarkation. An accident precipitated the impending conflict. One of the armed Englishmen at the other end of the bay fired a gun to stop a native canoe that was about to quit the shore. Unfortunately, through misdirection of aim or oscillation of the canoe, the shot that was intended to pass overhead, killed a chief named Kareemoo. The natives, taking this for a gage of battle, prepared for war, brandished their knives, and put on their war-mats. Captain Cook restrained his men, and they held back their fire till it was too late. Threatened by a native, Cook himself fired his musket loaded with small shot, which only rendered his assailant more furious. The marines and the crew now fired on the mob, but these were so closely packed at the water's edge that they crowded each other on toward their assailants, and in the melee four of the English were killed. The jam became so great that firearms were of but little use, and Cook was at the mercy of his enemies. He was seen to make an effort to reach the boat, with one of the natives in close pursuit, who, dealing him a stunning blow on the head with a club, precipitately retreated. Cook fell on one knee and dropped his musket, and as he was rising, another native stabbed him in the back of the neck with a dagger.

He then fell into the water, when others crowded upon him to keep him down. He was within twenty feet of the boat, but the mass of his assailants was so dense, and the crew so confused and panic-stricken, that he could not be rescued. He struggled bravely with his foes and got his head above water, when they again pounced upon him with greater violence, pushing him into deeper water. Again he forced his way to the surface, but only to be struck down with a club, which terminated the struggle. They then hauled his lifeless remains ashore and vied with each other in inflicting unnecessary wounds upon their fallen victim.

The natives were soon after dispersed, seeming to have glutted their revenge by the slaughter of Cook. Some time elapsed before Captain Clerke could obtain the mutilated remains for burial. They were committed to the deep with the customary naval honors, and amid the sincere lamentations of the afflicted crews. Captain Cook was specially solicitous of the welfare of his men. In 1776, when he was presented with the Copley medal, John Pringle, President of the Royal Society, thus emphasized his merit in that particular:

“ What inquiry can be so useful as that which has for its object the saving the lives of men? And where shall we find one more successful than that before us. [Cook’s account of his method for preserving the health of his men.] Here are no vain boastings of the empiric, nor ingenious and delusive theories of the dogmatist; but a concise and artless, and an uncontested relation of the means by which, under divine favor, Capt. Cook, with a company of 118 men, performed a voyage of three years and eighteen days throughout all the climates from 52° north to 71° south latitude, with the loss of only one man by sickness. I would now inquire of the most conversant with the bills of mortality, whether, in the most healthy climate and the best condition of life, they have ever found so small a number of deaths within that space of time? How great and agreeable, then, must our surprise be, after perusing the history of long navigations in former days, when so many perished by marine diseases, to find the air of the sea acquitted of all malignity; and, in fine, that a voyage round the world may be undertaken with less danger, perhaps,

to health, than a common tour in Europe." And it may be added that with all the modern appliances of preserved meats, carefully prepared pemmican, canned fruits, lime-juice and sundry other anti-scorbutics no navigator has succeeded in leaving a better record. He not only cared for his men, but he also knew how to elicit their confidence and esteem. He was kindly and considerate, but also decided and energetic, and knew how to rule as well as conciliate. He probably erred in attempting to enforce the rigid rules of stern discipline against the savages of Hawaii, and paid the penalty with his life. Holding races of infantile simplicity mixed with adult cunning to the responsibilities of civilized men was an error of the times, which has not even yet been quite outgrown. And the fame of Cook cannot be dimmed by an error of judgment. Such criticism would rob humanity of all its heroes.

Captain Clerke now assumed command of the expedition, intrusting his ship, the Discovery, to the immediate command of Lieutenant Gore. They proceeded to the Northern Ocean, touching at Petropaulovsky, in Avatcha Bay, on the coast of Kamchatka, where they were received by the Russians with marked hospitality. Passing thence through Behring's Strait, they reached latitude $70^{\circ} 33'$, where they encountered the ice some twenty miles lower than on the previous occasion. They relinquished all further attempt in that direction, and set sail for the homeward voyage. When they again reached Kamchatka, Captain Clerke died, and was buried on shore. The command of the expedition then devolved upon Captain Gore, with Lieutenant King in charge of the second vessel. They arrived at Macao, at the mouth of the Canton River, in China, December third, when they learned of the war between England and her American colonies, aided by the French; and at the same time of the generous order of the latter government that the vessels of Cook's expedition should be treated as neutrals by the cruisers of France.

In Canton the English seamen enjoyed an episode that formed an agreeable contrast to their late experience. They found an unexpected market for the furs for which they had bartered knives, trinkets, and even their brass buttons two years before on the northwest coast of

America. "One of our seamen," says Lieutenant King, "sold his stock alone for \$800; and a few prime skins, which were clean and had been well preserved, were sold for \$120 each. The whole amount of the value, in specie and goods, that was got for the furs in both ships, I am confident did not fall short of £2000 sterling; and it was generally supposed that at least two-thirds of the quantity we had originally got from the Americans were spoiled and worn out, or had been given away or otherwise disposed of in Kamchatka. When, in addition to these facts, it is remembered that the furs were at first collected without our having any idea of their real value; that the greater part had been worn by the Indians from whom we had purchased them; that they were afterward preserved with little care, and frequently used for bed-clothes and other purposes; and that probably we had not received the full value for them in China; the advantages that might be derived from a voyage to that part of the American coast, undertaken with commercial views, appeared to me of a degree of importance sufficient to call for the attention of the public."

A few of the seamen were so deeply impressed with the same conviction that they deserted the ships and were among the first Englishmen to engage in the Pacific fur trade.

Leaving Canton with replenished purses they finally arrived in safety at the Nore on the fourth of October, 1780, after an absence of four years, two months and twenty-three days. Five men had died on the Resolution, three of whom were sickly before leaving England; the Discovery had not lost a man.



CHAPTER XVII.

**ENGLISH AND DANISH VOYAGES—FROBISHER—POND—MACKENZIE—
DISCOVERS MACKENZIE'S RIVER—GODTHAAB COLONY FOUNDED—
SCORESBY MAKES FIRST VOYAGE TO GREENLAND—WM. SCORESBY,
JR., BEGINS SEAFARING LIFE—VOYAGE TO SPITZBERGEN SEAS—
NUMEROUS REMAINS OF ANIMAL LIFE — SCORESBY PUBLISHES
ACCOUNT OF HIS TRAVELS — NECESSITY THE MOTHER OF IN-
VENTION—DISCOVERS CAPE HOPE—INAUGURATES THE USE OF
BOATS AND SLEDGES.**

In 1775 Joseph Frobisher, engaged in the fur trade, reached the Mississippi or Churchill River, in the interior, through the region northwest of Lake Superior, and made a second successful trip the ensuing year. His brother, in 1777, reached Lac de la Croix, now Lacrosse Lake, at the head waters of the Churchill; and in 1778, a Mr. Pond following in their footsteps, and proceeding farther north, had discovered Lake Athabasca.

From Fort Chippewyan at the west end of Lake Athabasca, Alexander Mackenzie set out on the third of June, 1789, attended by a party of Canadians and some Indians, to discover another great river to the northwest, of which he had heard from the natives. One of the Indians had been in the service of Hearne eight or ten years before. Having found the river, he proceeded to descend it to its mouth. On the 12th of July they entered what they took to be a lake, from the shallowness of the water, though they saw no land ahead. "At a few leagues from the mouth of the river, my people," says Mackenzie, "could not, at this time, refrain from expressions of real concern that they were obliged to return without reaching the sea." But noticing a rise of eighteen inches in the water, they concluded they had reached the ocean, as it could only be ascribed to the tide. This opinion was confirmed by the appearance of

several whales sporting on the ice. He ascertained the latitude to be $69^{\circ} 14'$, and named the island on which they had camped Whale Island. The river has been called by his name, and its mouth is now determined to be in latitude $68^{\circ} 50'$, an error of $24'$, which, considering the imperfection of his instruments, must be regarded as a very creditable approximation. With this discovery and that of the great interior chain of lakes and rivers with which the Mackenzie connects, the Hudson's Bay Company's territory east of the Rocky Mountains may be said to have been outlined, and the Arctic Ocean proper reached for the first time by land on the American coast. In 1792 Mr. Mackenzie ascended the Peace River, crossed the Rocky Mountains and descended the Simpson River in 1793, reaching the Pacific Ocean just south of the Prince of Wales Islands, where he registered his name on the face of a rock—"Alexander Mackenzie, from Canada by land, the 22d of July, 1793"—whence he returned by the same route, arriving at Fort Chippewyan on Lake Athabasca, on the 24th of August.

DANISH VOYAGES TO GREENLAND.

Besides the voyages previously mentioned—of the Norsemen toward the close of the tenth century, and those under the auspices of Christian IV. in the early part of the seventeenth—there were a few noteworthy Danish expeditions to Greenland in more recent times. That of Hans Egede, in 1721, though mainly inspired with the hope of finding traces of the lost Norse colonies, and his missionary zeal, is of interest, as it led to the establishment of the first modern European settlement on the coast of Greenland. By the sacrifice of his personal fortune and with the aid of a few friends, Egede succeeded in forming the Greenland Company with a cash capital of \$9,000; and an annual endowment of \$300 from the missionary fund, to which were added \$200 by King Ferdinand IV., who, however, died nine years later. Egede left Bergen May 12, and arrived on the western coast of Greenland in Davis' Strait, latitude 64° , on July 3, and founded the settlement of Godthaab with forty Danish colonists. On the death of his royal patrons, the Danish government, disappointed in its anticipations of a lucrative trade with the natives and

the failure to find any trace of the old colonists, not only withdrew its paltry endowment, but ordered the colony to be broken up.

In 1733, through the zeal of the celebrated Count Zinzendorf, King Christian VI. was induced to countermand the order for the extinction of the Godthaab Colony. Not confining himself to this act of justice, he endowed the mission with an annuity of \$2,000, and intrusted it to the care of three Moravian brethren, members of the religious community founded by Zinzendorf. With his mission thus strengthened and its permanence assured, Egede returned to Denmark in 1735, where he died in 1758, at the age of seventy-two. He had been able to find ruins of churches and other buildings here and there along the coast, but no trace of survivors of the old Norse settlements, nor any tradition among the Esquimaux that they had ever existed. Fifty years after his return an expedition was sent out in 1786, under command of Capt. Löwenorn, to search for them on the east coast. But neither he, nor the Scoresbys, in their many voyages to those coasts from 1791 to 1822, nor Clavering in 1823, were ever able to discover any traces of European settlements in Greenland. The explorations of the Scoresbys and Claverrings were, however, too far to the north, but there yet remained to be examined the southeastern coast, north of Cape Farewell. This was undertaken in 1828, under the auspices of King Frederick VI. who commissioned Capt. Graah to make a careful inspection of that coast. Proceeding from the most southern point, in 1829, he made frequent landings as high as $65^{\circ} 18'$. It was deemed useless to prosecute the search farther, as it was believed no colony could have existed farther north. The result of his careful investigations was the conclusion that no Norse settlements had ever been founded on that coast. Not a trace of church or other building, not the faintest tradition among the natives, not a word in their language, not a tool or implement in their hands, could be found to furnish the slightest suspicion that the country had ever had any European inhabitants. It was inferred that the "east bygd" (or bight) of the old chroniclers was therefore not the east coast of Greenland, but only the most eastern portion of that part which was known to them. The "east bygd" was probably identical with the extensive dis-

trict now known by the name of the station or settlement of Julianshaab; and the "west bygd," with Fiskernaes, to the northwest.

VOYAGES OF THE SCORESBYS.

Capt. William Scoresby, the elder, made his first voyage to Greenland in 1791, and made thirty distinct voyages to Arctic Seas, but they were all of a commercial character; and only incidentally of geographical or scientific value. In 1806 he reached as high as $81^{\circ} 12'$ in Greenland Sea, a higher latitude than had been reached by any preceding navigator, where he saw "a great openness or sea of water." Being engaged in a whaling voyage only, he did not feel at liberty to go forward to the north, thus losing an exceptional opportunity perhaps of reaching the Pole. Again, in 1817, deviating from the usual northern route of the whalers, he steered west through the ice to the coast of Greenland, which he reached some minutes north of 70° . Here he could easily have landed, but his business being whale-catching, not exploration, he sailed back again into the open sea to secure a cargo. In one of his whaling ventures he is said to have taken the large number of thirty-six whales. His name was given to Scoresby Sound, where he landed on one of his later voyages. He made some improvements in the details of whaling; and is credited with the invention of the form of observatory known as "the round top-gallant crow's-nest," used as a lookout station. He died in 1829, in his seventieth year.

Capt. William Scoresby, the younger son of the preceding, was born in 1790, and began a seafaring life when in his eleventh year. In his seventeenth, he was first mate to his father in the famous voyage of 1806, to which we have already referred. Before he was quite twenty-one, he was in command of the whaler Resolution. In one of his voyages to Spitzbergen seas, he landed near Cape Mitre, and ascended a mountain 3,000 feet high. At a certain point of this laborious ascent the ridge was so narrow and the sides so precipitous that he could advance with safety only by straddling it and working forward with his hands and legs. It cost him several hours of hard work to reach the summit, and very often a single false step would have precipitated him to his

death in the abyss beneath. But he was delighted with the result of his achievement.

"The prospect," says he, "was most extensive and grand. A fine sheltered bay was seen to the east of us; an arm of the sea on the north-east; and the sea, whose glassy surface was unruffled by a breeze, formed an immense expanse on the west. The icebergs, rearing their proud crests almost to the tops of the mountains between which they were lodged, and defying the power of the solar beams, were scattered in various directions about the sea-coast and in the adjoining bays. Beds of snow and ice, filling extensive hollows, and giving an enameled coat to adjoining valleys—one of which, commencing at the foot of the mountain where we stood, extended in a continued line toward the south as far as the eye could reach; mountain rising above mountain, until by distance they dwindled into insignificance; the whole contrasted by a cloudless canopy of deepest azure, and lightened by the rays of a blazing sun, and the effect aided by a feeling of danger—seated as we were on the pinnacle of a rock, almost surrounded by tremendous precipices—all united to constitute a picture singularly sublime."

"Our descent we found really a very hazardous, and in some instances, a painful undertaking. Every movement was a work of deliberation. Having by much care and some anxiety made good our descent to the top of the secondary hills, we took our way down one of the steepest banks, and slid forward with great facility in a sitting posture. Toward the foot of the hill, an expanse of snow stretched across the line of descent. This being loose and soft, we entered upon it without fear, but on reaching the middle of it we came to a surface of solid ice, perhaps a hundred yards across, over which we launched with astonishing velocity, but happily escaped without injury. The men whom we left below viewed this latter movement with astonishment and fear."

In his further explorations along the east he found many skulls and large bones of whales, narwals, sea-horses, seals and foxes. Two Russian lodges, giving tokens of recent habitation by quantities of fresh chips and other tokens lying around, and the ruins of an older one, were found upon a shingly ridge adjoining the sea. Amid the boulders which had

in the process of ages rolled down upon the shore, or been conveyed thither by icebergs and ice-floes in great numbers, sea-birds had built their nests and laid their eggs, which they defended with great courage and much clamor against their enemies, the gulls. The only insect seen was a species of green fly, but medusæ and shrimps abounded in the water along the coast. He found two species of fucaceæ, a sub-order of the algæ, or sea-weeds.

A dead whale was found stranded on the beach, which, notwithstanding its swollen and half-putrid condition, proved worth about \$2,000. Scoresby inferred from the harpoon with which it had been killed, and which still stuck where it had been driven, that it had been attacked by fishermen at the mouth of the Elbe and had worked its way north, notwithstanding its wound, to the spot where it was found. It was a laborious task to take the oil and blubber aboard the ship which stood off the shore some two miles, and was driven still farther by the wind before they had secured all the products. With the sixth boat-load they had to chase the ship, which they found great difficulty in overtaking.

After Scoresby had made seventeen voyages to Arctic seas, he published, in 1820, "An Account of the Arctic Regions." This work added largely to the rather scant stock of general information on that subject, and constituted a valuable contribution to the hydrography, meteorology, and natural history of northern lands and seas. In 1822 he made his eighteenth voyage, arriving on the coast of Greenland in the vicinity of Scoresby's Sound, where his father had been some years before. He explored the coast to the north, which has been named Scoresby's Land in his honor, and which he described as the most grand and majestic he had ever seen. The mountains of this coast he named Roscoe, in honor of William Roscoe, poet, historian, member of parliament, and banker. They consist of a number of peaks about 3,000 feet high, and a still greater number of lower pyramidal elevations and a chaotic mass of jagged foot-hills with their rough declivities and narrow ravines. On the 24th of July he landed on a rocky promontory at $70^{\circ} 30'$, which he named Cape Lister, in honor of the famous London merchant and optician, Joseph Jackson Lister. He climbed to its summit to examine the

flora of this coast, which he described in his account of the voyage and its results, published in 1823 at Edinburgh.

A little farther on—at what he named Cape Swainson, in honor of the distinguished naturalist, William Swainson—he descended to the shore. Here he found a recently deserted camp of the



WILLIAM SCORESBY.

Esquimaux. Charred driftwood and ashes lay on the hearths of the several huts. No land animals were seen, but a number of great auks and other sea-fowls animated the waters. Mosquitoes, butterflies, bees, and some other less-known insects flew about among the

crags on the hillsides, in this the solitary summer month of Greenland, the only one in which there is no snow. The Esquimaux huts showed considerable ingenuity on the part of the builders. The climate being excessively severe, special protection against the cold had to be devised by the simple natives. "Necessity proved to be the mother of invention," there as elsewhere, among the children of men. A tunnel fifteen feet long, and opening to the south, was found leading to each hut. This is but slightly raised above the level of the ground, being so low that even the stunted Esquimaux are compelled to crawl through it on their hands and feet. Its bottom is usually a little lower than the floor of the hut to which it leads, and is further depressed about the center, so that the colder and heavier outer air is kept from the hut, instead of blowing directly through on the same level. Experience had taught these denizens of latitude 71° what men in happier climes and with the advantages of schools and colleges, and the accumulated wisdom of ages stored in books, recognize as a fundamental principle in the science of physics.

Returning to his ship, Scoresby proceeded still northward, and on the next day landed at what he named Cape Hope, in honor of Thomas Hope, a distinguished writer of the period. Here he found some more traces of Esquimaux—bones of the hare, and reindeer horns. The skull of a dog was raised on a small mound, it being a fancy of this simple people that the dog, who everywhere follows the footsteps of man, is the heaven-ordained guide of deceased children to the land of souls. The heat was now so great that many of the plants had shed their seeds, and some were already shriveled and dead. Scoresby now proceeded homeward, and this was his last voyage to Arctic seas.

Among his geographical explorations, he paid some attention to Jan Mayen Island, about midway between Iceland and Spitzbergen. This he found almost perpetually enveloped in mist, and its chief points of interest were the Beerenberg Mountain at its northern extremity, rising to the height of 6,870 feet, and the volcano Esk. Its dreary solitude would seldom be disturbed were it not for the herds of seal and walrus which frequent its ice-bound shores. Bears and sea-fowls are its only inhabi-

tants; and the characteristic features of its landscape are the seven great glaciers which sweep down its sides to the water's edge.

When the failure of Capt. Buchan, in 1818, had again damped the ardor of Arctic exploration, and the impossibility of reaching the Pole had begun to be accepted by the general public as a fact, Scoresby endeavored to prove that there was no such impossibility as alleged. He claimed that a voyage to the Pole did not necessarily involve great difficulty or danger. He pointed out that the chief obstacle was the alternation of ice fields with open sea; and proposed that to meet the difficulty it was only necessary to be ready to use, alternately, boats and sledges. This suggestion attracted attention, and has since been acted upon, no Arctic expedition being considered fully equipped without such double appliances.

Scoresby afterward became a clergyman in the Church of England, receiving the degree of B. D. in 1834, and D. D. in 1839. In the prosecution of his researches in terrestrial magnetism in relation to navigation he made a voyage to the United States in 1847, and to Australia in 1853. He died at Torquay, in England, in 1857. That portion of the north coast of Greenland which he explored in 1822, was named Scoresby's Land, in his honor.





PART III.

THE FIRST ARCTIC Voyages of the 19th Century.



*"O'er the glad waters of the dark blue sea,
Our thoughts as boundless and our souls as free;
Far as the breeze can bear the billow's foam,
Survey our empire, and behold our home."*

—BYRON.

*"Go forth and prosper, then, emprising band,
May He who in the hollow of His hand
The ocean holds, and rules the whirlwind's sweep,
Assuage its wrath and guide thee on the deep."*

—ANON.

CHAPTER XVIII.

BUCHAN IN DOROTHEA AND TRENT—DOROTHEA NEARLY DESTROYED IN THE ICE — ISABELLA AND ALEXANDER UNDER COMMAND OF ROSS AND PARRY—ENCOUNTER ESQUIMAUX—PHENOMENON OF RED SNOW — ENTER LANCASTER SOUND — ROSS ORDERS A RETURN.

Since the failure of Cook and Clerke in 1776-9, nothing had been done by the British government toward the solution of the problem in which the ministry were so much interested in 1773. The American War of Independence, 1775-83, and the Continental or French War, 1793-1815, left them little leisure and less inclination to prosecute voyages of exploration in the Arctic, or elsewhere. Soon after peace was firmly established by the Treaty of Vienna, in 1815, encouraged by the information which had been, meanwhile, gathered through the Scoresbys and other whalers, the ministry resumed the consideration of geographical and scientific voyages under the auspices of the crown.

In 1818 two Arctic expeditions were fitted out to seek a passage between the Atlantic and the Pacific—the one by the north and east, and the other by the northwest route—each comprising two vessels.

Captain David Buchan was put in command of the northern expedition, and his vessels were the Dorothea and Trent, the latter under the immediate command of Lieut. John Franklin, now better known under his later title of Sir John Franklin. Buchan's instructions were to make due north for Spitzbergen, and doubling its northernmost headlands, to sail eastward through the Arctic Ocean, and reach the Pacific through Behring's Straits. This route is easy to trace on any good map, but the achievement has hitherto defied the best navigators. If the region could only be brought under the equator for a generation, this difficulty would be removed; but the ice, the impenetrable, long accumulating ice,

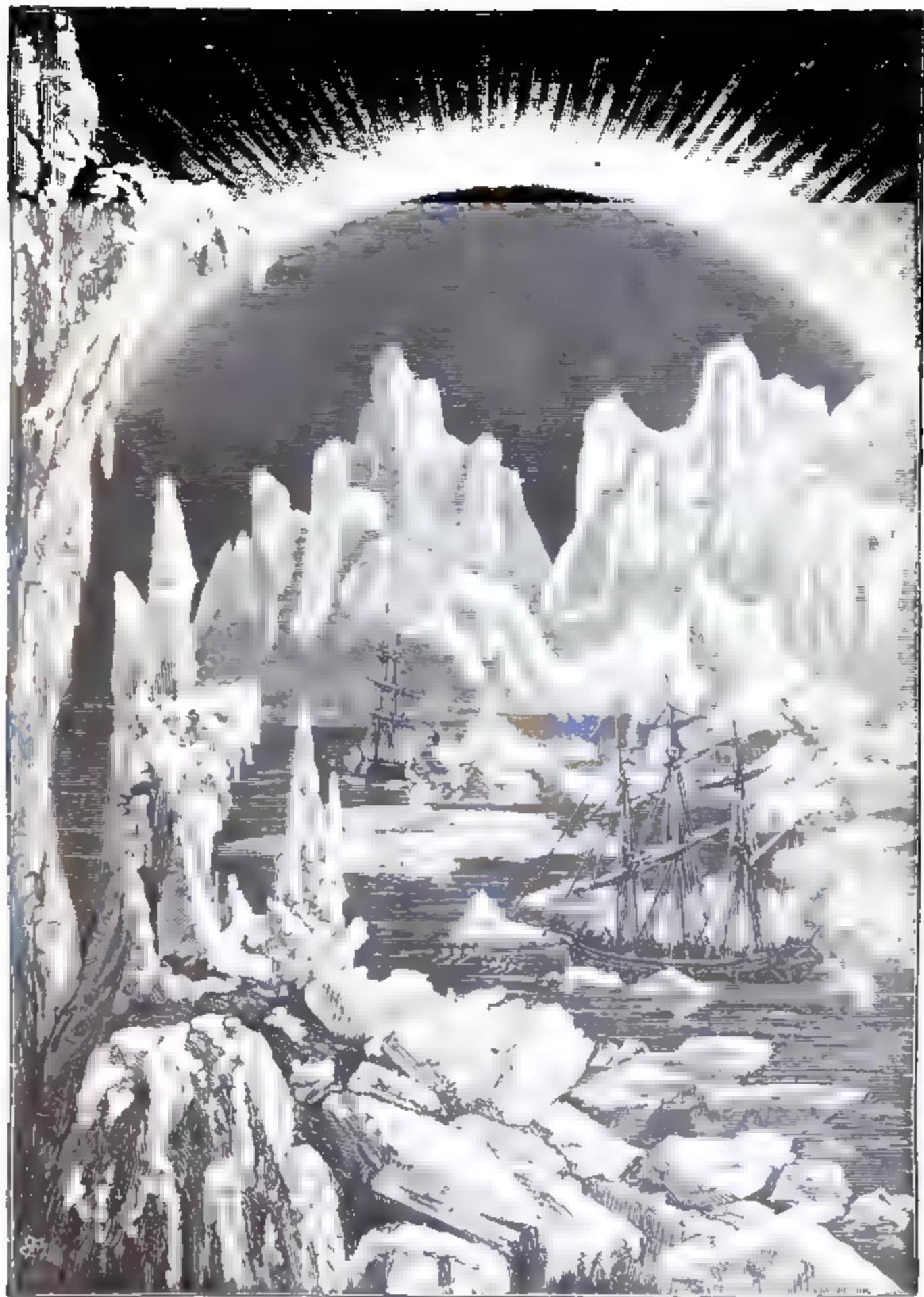
is there supreme, and likely to be so henceforward, unless some potent cosmical revolution should change its relative position.

On the 30th of July both ships were caught in a storm to the north-west of Spitzbergen, and the Dorothea was so much injured by contact with the ice that it was thought advisable to return to England, and her consort accompanied her. This failure, though free from serious disaster, had a most discouraging effect upon the public mind.



SIR JOHN ROSS.

Meanwhile, the other expedition had set sail on the 18th of April. It consisted of two ships, the Isabella and Alexander, under command of Captain, afterward Sir John Ross, with Lieut. William Edward Parry in charge of the Alexander. Ross' instructions were to make for Davis' Straits and Baffin's Bay, and, if possible, to penetrate into the Arctic



DOROTHEA AND TRENT.

Ocean by that route, after which he was to reach the Pacific by way of Behring's Straits.

Reaching the west coast of Greenland they encountered much ice, and were told by a Danish official that the winter had been exceptionally severe. Beyond Disco Island Ross was enabled to make some corrections in the observations previously made, finding, among others, an error of 5° of longitude in the location of Waygat Island as it appeared on the charts of the British admiralty. He determined with greater exactness the northwest coast from Melville Bay to Smith's Sound. Having passed Upernivik in $72^{\circ} 40'$, the most remote of all the Danish settlements on this coast, they were not a little surprised when they encountered some Esquimaux three degrees farther on, in $75^{\circ} 54'$. They had some difficulty in striking an acquaintance with these isolated and coy representatives of humanity.

Their astonishment was very great on finding that this people did not even know that there were other denizens of the earth besides themselves. They were as ignorant of the Danish settlements 200 miles away as of the Danish and other nations beyond the Atlantic. Their idea of the English navigators seemed to be that they were supernatural beings, inhabitants of another world. One of them, with much reverence and solemnity, addressed the moving and apparently living ship, asking, "Who are you? Whence come you? Is it from the sun or moon?" They had no canoes, and seemed to have no conception of the nature of the ship. It was not to them as to others of the same race, a big canoe, but something entirely beyond the reach of their intellects to grasp. And yet, though behind many of the aboriginal tribes in this respect, they were ahead of most in their knowledge of the use of iron, which tends to show that the ages of the archæologists are to be understood as stages of progress in the development of humanity, but by no means synchronous nor successive over the whole earth. They had rude knives, the manufacture of which they explained in this way: They had found a huge mass of it—which the interpreter, perhaps, erroneously translated a mountain, but which was probably a meteoric body—and had chipped off the pieces which they had ham-

mered with stones into the shape in which they saw them. Ross named them the Arctic Highlanders.

Proceeding farther up the coast, they entered the phenomenon of red snow, which the great Swiss naturalist, Saussure, had observed in the Alps at least thirty years before, but which was none the less strange to our explorers. When melted, it presented the appearance of muddy port wine. For eight miles along the Greenland shore of Baffin's Bay the cliffs were covered with this peculiar snow, and in some places to the depth of twelve feet. In 1819, some months after their return to England, the coloring matter of the red snow was subjected to careful analysis by Robert Brown and Francis Bauer, who, however, differed slightly in opinion. Brown pronounced it a one-cell plant of the sea-weed order; Bauer named it the snow-uredo, a species of fungus. Afterward Baron Wrangell, the Russian explorer, declared it to be a lichen. Later still, Bishop Agardh, the Swedish naturalist, and Dr. Robert Kaye Greville, a famous British botanist of Edinburgh, have given the weight of their recognized authority in support of the opinion of Brown. These have been followed by several other scientists, and the minute plant is now scientifically known as the *palmella nivalis*, a little snow-palm, given it by Sir William Hooker. The motions of this microscopic object in the earlier stages of its existence have led some eminent naturalists to regard the coloring matter in red snow as animalculæ, not plants. And it is not impossible that such may have been observed; but the essential character of the object is vegetable. In its mature state it consists of brilliant globules like fine garnets, seated on, but not immersed, in a gelatinous mass. Saussure had rightly conjectured that the red color was owing to the presence of some vegetable substance, but wrong in supposing it to be the pollen of a plant.

Captain Ross was an experienced naval commander, having been in active service in the Continental War, but he was somewhat opinionated in this his first Arctic voyage, and inclined to follow the old school. He decided by his personal opinions questions of geography which required to be ascertained, not prejudged, and to which a little actual investigation would have furnished a different answer. He sailed by Wolsten-

holm, Whale and Smith Sounds without deigning to examine them, arbitrarily declaring them to be bays, the heads of which he thought were visible in the distance. But a worse mistake of the same kind was still to be made by the otherwise blameless Captain Ross. Passing to the west side of Baffin's Bay, the sea was found clear of ice, and the land free from snow, except on the distant mountain ranges. The temperature rose, and the chance was favorable for achieving some great result. On the 29th of August the ships entered Lancaster Sound, so named by Baffin in honor of a distinguished English navigator in other seas, but who had always shown great interest in the discovery of the Northwest Passage, and had made a collection of documents tending to prove its feasibility.

Into this spacious sound, nearly fifty miles wide at its eastern entrance, now passed the ships of Captain Ross, but they had advanced only thirty miles when, to the wonder and disappointment of officers and men, he ordered the vessels to turn back. Deceived by refraction or some atmospheric illusion, he thought he had seen a mountain range at a distance of about twenty-five miles ahead, which he inferred was the head of the bay, and which he even named Croker's Mountains, in honor of John Wilson Croker, then at the height of his fame. It is but justice to the memory of Ross to remind the reader that though the body of water in question, as well as the more northern ones known as Jones' and Smith's Sounds, had been discovered and named by Baffin, it had not been yet ascertained that they were sounds. It was, however, a question that had been discussed, and opinions were divided. Some of Ross' own officers believed that this water in which they were was a channel communicating with a larger body or sea to the west, if not with the Arctic Ocean itself; and his error consisted in not making the test when circumstances were favorable.

Passing down Baffin's Bay along its southern coast, of which but little was known, he failed to explore it; and reaching Cumberland Sound he exhibited the same fatal indifference. The aggravation of the unconscious offense lay in the fact that the season was an exceptionally favorable one for making a thorough examination

of that coast. For, notwithstanding what he had been told by the Danish commandant some months before, the fact was that up to that time Baffin's Bay had not been so open for exploration. Here again his inexperience of northern latitudes put him at a disadvantage. They left Cumberland Sound for England early in October, and arrived in safety, without having effected anything of consequence, and added to the general discouragement created by the more excusable failure of Buchan.



CHAPTER XIX.

FIRST VOYAGE OF PARRY — OBJECT OF THE VOYAGE — ENTER THE ARCTIC CIRCLE—BESET IN THE ICE—REACH POSSESSION BAY—PRINCE REGENT INLET NAMED—CAPE YORK.

Among those who inclined to the opinion that Lancaster Sound opened into a larger body to the west, and perhaps communicated with the Arctic Ocean, was Lieutenant Parry, second in command to Ross. He had entered the navy in 1803, while yet a lad, having been born Dec. 19, 1790. He devoted his spare time on board to self-education, and especially to the mastering of the nautical and astronomical science of his day. He received his commission of lieutenant in 1810, and was given command of a vessel to the Arctic regions for the double purpose of affording protection to British whalers, and perfecting the admiralty charts of those seas. In 1813 he was recalled and sent to join the British fleet then blockading the ports of the United States, and after the war, continued attached to the North American squadron till 1817. While with Ross in 1818, he was impressed with the great depth and high temperature of the water in Lancaster Sound, and was dissatisfied with the conclusion arrived at by his chief. Though modest in the expression of his dissent, it reached the ears of the ministry, and to him was now intrusted an expedition to go over the same ground. Though the general public had about given up all hope of a Northwest Passage being ever found, the leaders of thought, and the authorities, as well as Parry and some other of Ross' officers, were not disposed to give up the search until Lancaster Sound, at least, had been properly explored.

The new expedition, like so many others of the recent ones, consisted of two ships—the Hecla of 375, and the Griper of 180 tons burden. Both were victualed for two years and amply provided with stores of all kinds, including canned meats and extra clothing for the men.

Though the main object of the voyage was to search for the Northwest Passage, and especially through Lancaster Sound, yet any new information that could be gleaned in relation to geography, natural history, meteorology or other science, was to be carefully noted and preserved. After passing latitude 65° , they were to throw overboard from time to time a sealed bottle, containing a record of the date and position where it had been consigned to the deep. And wherever they should land on the coast of North America they were to erect a flag-staff, hoist the union jack, and deposit at the foot a record of what they had achieved, and their future intentions, in a similar sealed bottle.

Parry's expedition left London May 5, 1819, but did not clear the Orkney Islands until the 20th. On the 30th they took soundings for the alleged "Sunken Land of Buss," on the direct route to Greenland, but failed to find any evidence of its existence. On the 15th of June they sighted Cape Farewell, but at the distance of perhaps 120 miles. On the 18th they encountered the first ice stream of floating ice, and saw several icebergs. They noticed several kinds of sea fowls and in greater numbers than usual, and found the water 3° lower in temperature, and of a dirty brownish tinge. On the 24th the ice was seen extending clear to the western horizon; and on the 25th they were towed slowly along by their boats through the ice-floe. An easterly wind now closed the ice around them so that they were forced to desist from their rowing; and the vessels remained ice-locked until the 29th, making such progress as the ice made, and no more.

They saw a whale and a bear, the latter of which they killed, but the



SIR WILLIAM EDWARD PARRY.

living and the dead disappeared beneath the ice. On the 30th, after eight hours of incessant labor, they were enabled to work the ships into clear water to the east. They skirted these ice-packs for three days looking in vain for an opening to the west side of Davis' Strait; and in constant danger of being driven into the ice by the east wind. On the 3d of July they entered within the Arctic Circle off the northern peninsula of Cumberland, having passed not less than fifty icebergs during the day. Toward midnight a chain of icebergs appeared to the north, and the wind dying down, the ships were in imminent danger of coming into close quarters with them, being carried forward by a southerly swell, and unable to change their direction in the calm. By putting out their boats they succeeded in towing back the *Hecla*, which was ahead, into open water, and out of the way of the icebergs on the morning of the 4th, and at noon were in the middle of Davis' Straits, with the ice to the westward. A day or two later they killed a walrus, and saved its blubber for lamp-oil. On the tenth they killed a bear and succeeded in getting it aboard. On the 17th they took the ice, that is they sailed into it, in order to keep as close to the westward as possible, the commander being still bent on not going too far from that side of the strait. They succeeded in getting twelve miles, when, on the 18th, they encountered a body of ice right across their bows. This they attempted to bore, or push through, but the wind not being favorable, they stuck fast after having penetrated it about 300 feet.

For five hours they labored, hither and thither, backward and forward, before they could succeed in crossing this ice-belt of only 300 yards' width. The fog by which they had been long beset having lifted on the 21st, they descried on the distant coast of Greenland, the headland just south of Upernavik, and which Davis had named Sanderson's Hope, in 1587. The commander again growing uneasy at the distance he was compelled to keep from the western shore of Baffin's Bay, determined to make another effort to push through the ice to the west. The struggle so bravely entered on, lasted seven days, and after prodigies of endurance and long-continued exertions, sometimes lasting without intermission for

eleven hours at a stretch, by backing and towing, sawing through the ice-packs, and other devices, they succeeded in getting into clear water on the western shore of Baffin's Bay. They had traversed eighty miles of almost continuous ice-floe from about the middle of the bay, which they had left on the 22d, and now, at six o'clock on the 29th, they found themselves sailing in an open sea, free from all obstructions. Here they saw not less than eighty-two whales in a single day. The sea was deep—they were unable to reach bottom with a line of 310 fathoms; the temperature of the water was found six degrees higher, and they soon came in sight of land.

On the last day of July, 1819, the commander and a few of his men went ashore in Possession Bay, where on the previous year Capt. Ross had raised a flag-staff. This they found uninjured, and the tracks made in putting it up, uneffaced, whence they inferred that it had remained unvisited since its erection. A small party was detached a short distance to ascertain if the land was a wood-bearing one, as had been claimed because of some birch-bark picked up on the previous voyage, but no trace of wood could be discovered. Appointing a rendezvous with Liddon in case the vessels became separated, Parry now prepared to push forward in the Hecla as rapidly as possible. The wind becoming favorable Aug. 3, they crowded sail and sped rapidly through Lancaster Sound. "It is more easy to imagine than describe," says Parry, "the almost breathless anxiety which was now visible in every countenance, while as the breeze increased to a fresh gale, we ran quickly up the sound. The mast heads were crowded by the officers and men during the whole afternoon; and an unconcerned observer, if any could have been unconcerned on such an occasion, would have been amused by the eagerness with which the various reports from the crow's nest were received; all, however, hitherto favorable to our most sanguine hopes."

Before night they had passed the point reached the previous year; and soon attained longitude $83^{\circ} 12'$, with the channel about forty miles wide, and as deep as at the entrance. The water had the color of the ocean, with a perceptible swell from the south and east. They saw nothing of Croker's Mountains which thenceforth disappeared from geo-

graphical nomenclature. They began to imagine they had already reached the open polar sea, and were on the very eve of solving the double problem of finding the Northwest Passage and the Pole. They were soon undeceived, for though the fancied mountains had disappeared, they encountered a very real obstacle in an ice-pack. To the south they observed an opening thirty miles wide, which they entered in the hope of still pushing westward. In this, however, they were disappointed, finding themselves in what Parry named Prince Regent Inlet, which, with its wide continuation, the Gulf of Boothia, stretched away to the south, some 450 miles. In descending the inlet the ships' compasses lost their wonted energy, and they witnessed for the first time "the curious phenomenon of the directive power of the needle becoming so weak as to be completely overcome by the attraction of the ship; so that the needle might now be properly said to point to the north pole of the ship."

They sailed through the inlet to where it widened into the gulf already mentioned, and finding the northwest corner, which was the direction they sought to take, blocked by an impenetrable ice-barrier, they retraced their course. On the 13th they discovered on the east shore of the inlet a harbor one mile wide and three deep, which they named Port Bowen. The narwals were here found in great numbers, and also dovekies and ducks. They landed on what Parry describes as the most barren spot he had ever seen. Being here detained two days by the ice, they made some slight exploration of the barren coast, and deposited on a little hillock a record-bottle, which they covered with a pile of schistose limestone. Of this there was an abundance, but there was neither soil nor vegetation to be found. On the 17th they reached the headland at the northeastern point of the junction of Prince Regent Inlet with Lancaster Sound, to which Parry gave the name of Cape York. At nine o'clock in the evening of the 18th, after beating around for several hours among ice-floes, they reached clear water near the north shore of Lancaster Sound. In a few days they found the channel so clear of ice that it was impossible to believe it to be the same part of the sea, which but a day or two before had been completely covered with floes to the

utmost extent of our view." Here they picked up a spar which a seaman had dropped overboard some two weeks before, indicating the absence of current and the extent of their digression.

Entering the continuation of Lancaster Sound, to which Parry gave the name of Barrow Strait, in honor of Sir John Barrow, second lord of the admiralty, they passed Beechey Island, Cape Hotham and Cape Bowden. On the 22d of August, in longitude $92^{\circ} 15'$, they saw an inlet about twenty-five miles in width, which opened to the north, and in which they could see neither land nor ice from the masthead. To this Parry gave the name of Wellington Channel; and this break in the continuity of the coast on that side had the effect of making him think that he "had actually entered the Polar Sea. Though two-thirds of the month of August had now elapsed, I had every reason to be satisfied," he says, "with the progress we had hitherto made. I calculated upon the sea being navigable for six weeks to come, and probably more, if the state of the ice would permit us to edge away to the southward in our progress westerly. Our prospects, indeed, were truly exhilarating; the ships had suffered no injury; we had plenty of provisions; crews in high health and spirits; a sea, if not open, at least navigable; and a zealous and unanimous determination, in both officers and men, to accomplish by all possible means the grand object on which we had the happiness to be employed."

Still sailing westward through Barrow's Strait along the south coast of Cornwallis Island, they reached Griffith, now Bathurst Island. The former has since been ascertained to be a peninsula of the latter, but they were supposed at this time to be distinct islands. Here they found traces of an Esquimaux encampment, which Captain Sabine examined with care. He found six huts "on a level, sandy bank, at the side of a small ravine near the sea," and constructed "of stones rudely placed in a circular or elliptical form. They were from seven to ten feet in diameter; the broad, flat sides of the stones standing vertically, and the whole structure, if such it may be called, being exactly similar to that of the summer huts of the Esquimaux which we had seen at Hare Island the preceding year. Attached to each of them was a smaller circle, generally

four or five feet in diameter, which had probably been the fireplace. The small circles were placed indifferently as to their direction from the huts to which they belonged; and from the moss and sand which covered some of the stones, particularly those which composed the flooring of the huts, the whole encampment appeared to have been deserted for several years."

The magnetic observations made here, compared with those of Prince Regent Inlet, already noted, "led to the conclusion," says Edward Sabine, the mathematician of the expedition, "that we had in sailing over the space included between the two meridians, crossed immediately to the northward of the magnetic pole, and had undoubtedly passed over one of those spots upon the globe where the needle would have been found to vary 180° , or, in other words, where its north pole would have pointed due south. This spot would, in all probability, at this time be somewhere not far from the meridian of 100° west of Greenwich."

Continuing their voyage to the westward, without diverging to the south in the wide expanse of Melville Sound, they skirted the coast of a yet larger island, which Parry named Melville Island. On the 4th of September they passed longitude 110° west, thus becoming entitled to the reward of £5,000 offered by order of council "to such of His Majesty's subjects as might succeed in penetrating thus far to the west, within the Arctic Circle." They named the neighboring headland Bounty Cape, and continued their course to the westward. Checked by the ice, they made several excursions on shore in search of game, and for purposes of exploration, from the 8th to the 13th. In one of these, seven of the men got lost, and afterward separated into two sections of three and four. The four returned in three days, being guided by a flag-staff which the commander had ordered raised for that purpose; and the other three after an absence of ninety-one hours. Relays of search parties were sent out, day after day; and all the wanderers were finally brought safely to the ships. By the care and attention of their comrades and the medical staff, they soon recovered from their exhaustion.

On the 20th a council of officers was held, who concurred with the commander in the opinion that, as the ice continued to close in upon them,

and there was but little prospect of making any headway to the west, it was time to seek for winter quarters. Two days later they retraced their course, and began to make their way slowly eastward, to Bounty Cape. They had previously named a neighboring inlet the Bay of the Hecla and Griper, and here they now determined to seek refuge. To reach the head of the bay they had to cut a canal nearly two and one-third miles through the new ice, the average thickness of which was seven inches. This they effected in three days, and at a quarter-past three o'clock on Sunday, September 26, they had reached their moorings in what they named Winter Harbor, in longitude $110^{\circ} 48' 2''$ west, and latitude $74^{\circ} 47'$. Hereupon the men cheered lustily, and with some reason, as they were now relatively safe. The ships floated in a land-locked harbor in five fathoms of water and at a cable's length from the land, where the ice-floe could not imperil them. And yet one can hardly refrain from reflecting what a dreary refuge it was over which they rejoiced.

But human joy is always a matter rather of comparative than absolute comfort. These men were on the eve of an Arctic winter of perhaps nine months' duration, and during three of these they were to be bereft of sunlight; and yet they make the welkin ring with their cheers! Were they seeking to find relief from the heart-sickening which the situation was so well calculated to produce? More probably the sense of having conquered the sea and the ice, and asserted once again the human prerogative of subduing adverse circumstances, naturally awakened this gleam of exultation. Some time before, Parry had given expression to a sentiment which no doubt had its influence on this occasion: "It created in us no ordinary feelings of pleasure," says he, "to see the British flag waving for the first time in these regions, which had been hitherto considered beyond the limits of the habitable world."

CHAPTER XX.

TRIALS AND PASTIMES OF AN ARCTIC WINTER—HEALTH REGULATIONS—AN ARCTIC NEWSPAPER—AN ARCTIC THEATER—DAILY OCCUPATIONS—TOTAL ABSENCE OF THE SUN—THE APPEARANCE OF SCURVY—MOCK SUNS—MORE THEATRICALS—EXTRACT FROM AN ARCTIC JOURNAL—A SHOWER OF RAIN.

No time was lost; the security of the ships and the preservation of the stores and provisions received prompt attention. The vessels were unrigged, and partially dismasted; the lower yards were lashed fore and aft, to support the planks which were to constitute the outer shell of an extemporized house on shipboard. Boats, spars, sails, ropes, and everything not likely to be needed were stored away on shore, and the house on each ship was covered with a cloth by way of roof. Parry next gave his attention to providing every possible safeguard against sickness. Fortunately the men had hitherto shown no symptoms of that scourge of seamen, the scurvy; and it was of the utmost importance to anticipate its approach by the use of all known preventives that were accessible. The first care was directed toward utilizing the heat from the galley-range and copper-boilers of the ships, and by some ingenious but simple contrivances this was made to warm the sleeping berths of the men. A large stone oven, cased with cast iron, used for baking their bread, was placed in the main hatchway, and the pipe carried fore and aft on the lower deck, the smoke ascending through the forward hatchway. With an ordinary fire and these appliances they were able to secure a temperature of 87° Fahrenheit, at a distance of seventeen feet from the fireplace. The steam from the coppers was intercepted on a curtain of dreadnaught reaching to within eighteen inches of the deck, which suffered the heat to pass beyond, while the steam was condensed into water on the hanging cloth. Provision was made for the distribution of suffi-

cient food, but reduced one-third from the stated allowance. The daily ration of lime-juice and sugar mixed together, and with a proper quantity of water, was drank in presence of an officer, to insure compliance with this precautionary regulation of the commander. Once a week the medical staff examined the men for symptoms of scurvy.

Parties were sent out to hunt, who at first found an abundance of grouse and reindeer, but before the close of October these had all migrated from Melville Island; but wolves and foxes remained all winter. This fresh meat, when obtainable, was served instead of the regular rations, to insure its consumption; for, although often less palatable, it was more wholesome. To promote contentment among the men, no partiality in quantity or quality of food of any kind was shown to officers. During the day the men were employed in banking up the ship with snow, and when this resource was exhausted they were sent on short excursions inland and along shore for sake of exercise. In bad weather they were marched around the deck to the time of a barrel organ.

Recognizing the value of hygienic cheerfulness and laughter, the commander, in concert with his principal officers, now projected a series of theatrical representations, at intervals of about two weeks. "In these amusements," says Parry, "I gladly undertook a part myself, considering that an example of cheerfulness, by giving direct countenance to everything that could contribute to it, was not the least essential part of my duty, under the peculiar circumstances under which we were placed.

"In order still farther to promote good humor among ourselves, as well as to furnish amusing occupation during the hours of constant darkness, we set on foot a weekly newspaper, which was to be called the 'North Georgia Gazette' (he had named the islands now best known by his name, the North Georgian Islands) and 'Winter Chronicle,' and of which Capt. Sabine undertook to be the editor, under the promise that it was to be supported by original contributions from the officers of the two ships; and I can safely say that the weekly contributions had the happy effect of employing the leisure hours of those who furnished them, and diverting the mind from the gloomy prospect which would sometimes obtrude itself on the stoutest heart."

Meanwhile Capt. Sabine had erected an observatory about 700 yards to the west of the ships, and a house for the instruments, made with a double sheeting of planks. The intervening space being packed with moss, this house could be kept comfortably warm in the worst weather by a single stove. They had expected to make important observations on the 4th of November, the last day of the sun's appearance above the horizon; but the weather was too foggy, and they were unable to calculate the amount of refraction as anticipated. On the 5th they presented to an admiring and enthusiastic audience their first play, "A Miss in Her Teens," which was loudly applauded. Besides affording the anticipated amusement to the men, it was found that putting the play on the boards, as well as running the machinery and properties afterward, afforded pleasant and exhilarating occupation to a number of them, which, perhaps, was not the least beneficial result of the original design. The commander wisely "dreaded the want of employment as one of the worst evils that was likely to befall them."

In pursuance of this idea the men were so busily engaged that they complained of not finding time to mend their clothes, whereupon the commander set apart one afternoon in each week for that purpose. "The officers and quartermasters were divided into four watches, which were regularly kept as at sea, while the remainder of the ship's company were allowed to enjoy their night's rest undisturbed. The hands were turned up at a quarter before six, and both decks were well rubbed with stones and warm sand before eight o'clock, at which time, as usual at sea, both officers and men went to breakfast. Three-quarters of an hour being allowed after breakfast for the men to prepare themselves for muster, we then beat to divisions punctually at a quarter-past nine, when every person on board attended on the quarter-deck, and a strict inspection of the men took place as to their personal cleanliness, and the good condition as well as warmth of their clothing."

While the commander examined the lower deck and visited the sick, those he had left, occupied themselves with a walk or run about the vessel; and on his return were dismissed for a trip ashore until noon. These stated walks afforded no amusement

and but little interest. The dreary sameness of the scene, the silent and unchanging landscape, the glaring ice and snow, could not prove otherwise than monotonous. It was, however, much better than sitting still and moping; its recurrence served to arrest attention, and its execution afforded the gratification of a duty performed. "We had frequent occasion," says Parry, "in our walks on shore to remark the deception which takes place in estimating the distance and magnitude of objects when viewed over an unvaried surface of snow. It was not uncommon for us to direct our steps toward what we took for a large mass of stone at a distance of half a mile from us, but which we were able to take up in our hands after one minute's walk. This was more particularly the case when ascending the brow of a hill, nor did we find that the deception became less on account of the frequency with which we experienced its effects."

The afternoons were devoted by the men to making the plaited cords or gaskets used in furling sails, or similar shipwork. At six they were again summoned for general inspection, after which they took supper, and then amused themselves as best they might with various games until nine o'clock, when they went to bed. The watch visited the lower deck every half-hour to see that all was safe; and to be ready, should fire break out, a hole was cut twice a day in the ice near each ship. On Sundays divine service was regularly held on each ship, and a sermon read. These religious exercises, aside from their ordinary salutary effects on the human mind and conduct, are recognized as of special potency in tranquilizing the spirits and sustaining the courage of large bodies of men in difficult situations.

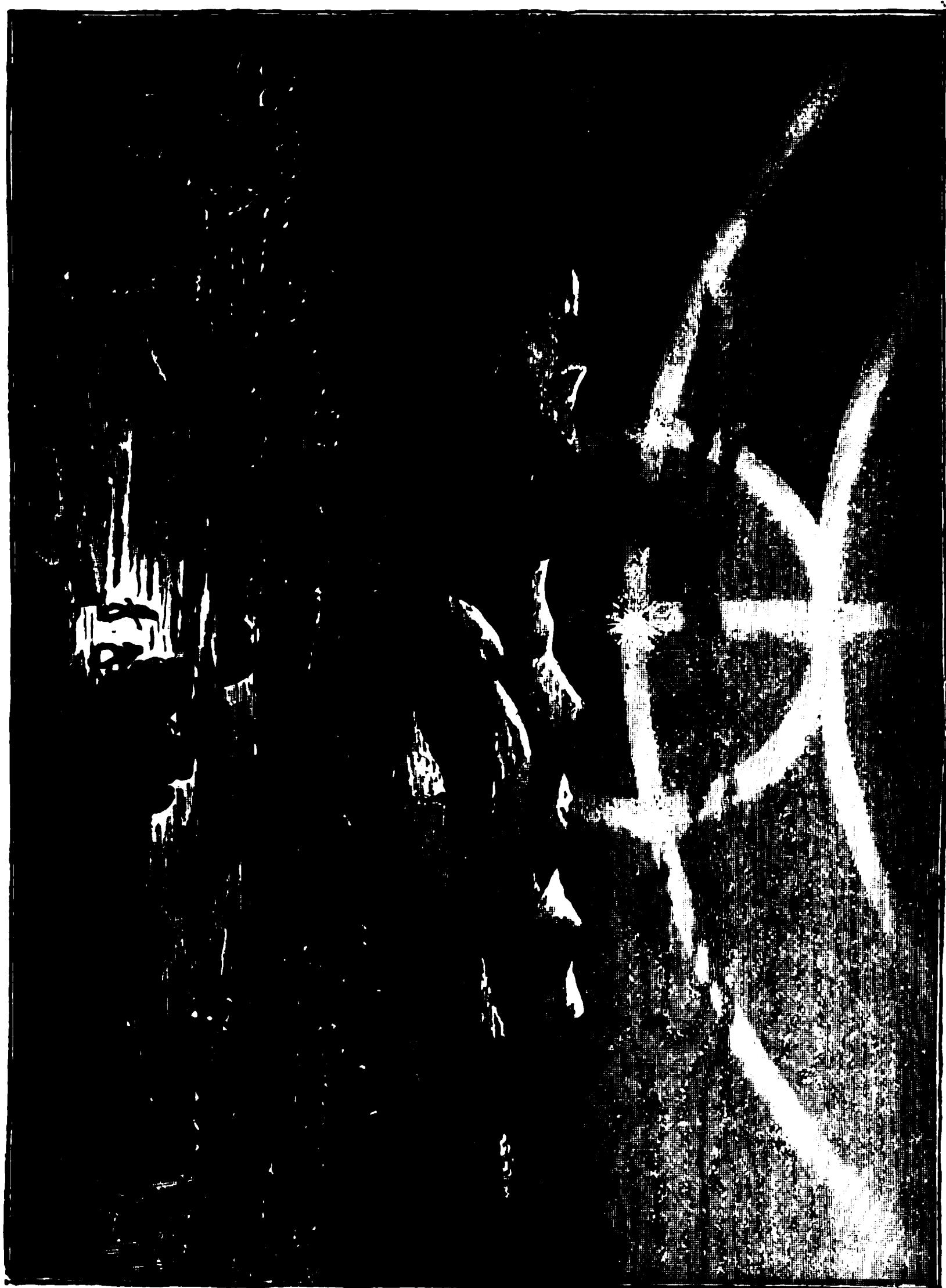
Though they were now in continuous "night," it should be noted that each day about noon they enjoyed a considerable twilight for about two hours, sufficient not only to enable them to take their accustomed walk with comfort, but even to read ordinary type without artificial light. Nor even on the shortest day, the 22d of December, were they entirely deprived of this twilight; for Parry particularly mentions that he was able to read for a short time on that day, but it was necessary to hold the printed page directly toward the south. Indeed, the use of the word

night in this connection is liable to convey a wrong impression. The reflection of light from the snow and the moonlight were sufficient even in the thickest weather to dispel the feeling of gloom that accompanies a dark night in temperate zones. They observed Christmas on board with as near an approach as possible to the customs of their country, and the playwrights and actors prepared and performed a Christmas piece, expressly adapted to the audience and the circumstances. During January the thermometer ranged from 30° to 40° below zero, and occasionally sank to 50° , so that in going ashore the change of temperature was sometimes 120° , but by using the necessary precautions no injury was received, and they kept up their daily rambles.

At length the gunner of the *Hecla* was taken down with scurvy, contracted through the moisture deposited by the steam on his bedclothes, notwithstanding all the care that had been taken to guard against this evil. By the free use of the recognized remedies, especially the fresh mustard and cresses, which the commander with his usual forethought had procured, the gunner was restored to health. A few others were slightly affected, and more easily cured. It was found that the men became easily frost-bitten in their feet, and with his customary spirit of investigation the commander sought out the cause and the remedy. It was found that the hard thick leather of which their boots were made cramped their feet and prevented the circulation, thus inducing frost bites of the joints. "Being very desirous," says Parry, "of avoiding these accidents, which, from the increased sluggishness with which the sores healed, were more and more likely to affect the general health of the patients by long confinement, I directed a pair of canvas boots, lined with blanketing or some other woolen stuff, to be made for each man, using rawhide as soles; this completely answered the desired purpose, as scarcely any frost bites in the feet afterward occurred, except under circumstances of very severe exposure."

At noon on Feb. 3d the sun was seen fifty-one feet above the horizon from the maintop of the *Hecla* for the first time since Nov. 11; and at the same hour on the 7th its full orb was first visible above the

MOCK SUNS.



horizon, with a mock-sun 22° to the east. The daylight was sufficient from eight to four o'clock for outside work, and they began the task of preparation for their departure. They collected stones for ballast, of which the Hecla would require seventy tons, besides twenty of additional water to replace the weight of provisions and stores consumed during their stay. February proved the coldest month, the mercury descending to 55° below zero on the night of the 14th. But even then no inconvenience was suffered from exposure to the open air in calm weather. If, however, there was occasion to face even a light wind, severe pains in the face and head were sure to ensue. On the 16th a mock sun appeared on each side of the sun, visible for half an hour. On the 24th the house which had been built on shore for astronomical instruments, was discovered to be on fire. The men from both ships hastened to the rescue, and by tearing off the roof and throwing snow on the burning interior, they extinguished the flames without injury to the more valuable instruments. The thermometer was at 44° below zero, and they were at work three-quarters of an hour. "The men's faces presented a singular spectacle; almost every nose and cheek was frost-bitten, and became quite white in five minutes after being exposed to the weather; so that the medical men, with some others appointed to assist them, were obliged to go constantly round while the men were working at the fire, and to rub with snow the parts affected in order to restore animation. Capt. Sabine's servant, in his anxiety to save the dipping needle from the observatory, ran out without his gloves; his fingers, in consequence, were so completely frozen that on his hands being plunged into a basin of cold water, the surface was immediately covered with a cake of ice from the intensity of the cold thus communicated to it; but animation could not be restored in this instance, and it was found necessary to resort to amputation." This hero of duty and victim of imprudence was John Smith. He lost parts of four fingers on one hand and three on the other.

Sunday, the 5th of March, was the first day to which they could attach the idea of spring, and they noticed with peculiar gratification the thawing of a little snow on the stern of the Hecla, which lay due south, this being the first time such a thing had occurred for more than five

months. On the 8th, "it will scarcely be credited," says Parry, "that we removed about 100 buckets full of ice, each containing from five to six gallons, being the accumulation which had taken place in an interval of less than four weeks; and this immense quantity was the produce of the men's breath and of the steam of their victuals during meals, that from the coppers were being effectually carried on deck by the screen which I have before mentioned." But though March "came in as a lamb," before the middle of April the weather again grew very cold. The 16th, however, was mild and pleasant, and is worthy of mention as being the date of their last theatrical performance, consisting of two farces—"The Citizen" and "The Mayor of Garratt"—with an original epilogue by one of the ship's poets. A week later they tested the newly formed ice in Winter Harbor. The depth of water was only twenty-five and a half feet, and the ice was found to be six and a half feet thick. This had been produced in six months, and allowing for six weeks more to the close of the season it was thought fair to estimate the rate of formation as seven feet and a half for the whole winter. Toward the close of April the weather again grew mild and genial, but on the first of May under the influence of a strong gale from the north, it suddenly became as cold as before.

"The Winter Chronicle and North Georgia Gazette" appeared daily, Sundays excepted, from the first of November, 1819, to the 20th of March, 1820. It reported the different excursions, hunting expeditions, explorations, discoveries, accidents, and adventures. It contained criticisms of the latest theatrical performance and announcements of the next one. Stories, original and otherwise, correspondence and poetry, were not wanting; and altogether it must be regarded as one of the most successful ventures in journalism ever attempted. It was eagerly perused by the whole community; such as could not read had it read to them; and there was not a single resident of Winter Harbor who did not take the Gazette. The following letter, which appeared in the first number, graphically describes the interest awakened, and therefore is given in full:

"MR. EDITOR:—Your proposition to establish a journal has been received by us with the greatest satisfaction. I am convinced that, under

your direction, it will be a great source of amusement, and go a long way to *lighten* our hundred days of darkness. The interest I take in the matter myself, has led me to study the effect of your announcement on my comrades, and I can testify—to use reporters' language—that the thing has produced an immense sensation. The day after your prospectus appeared, there was an unusual and unprecedented demand for ink among us, and our green tablecloth was deluged with snippings and parings of quill-pens, to the injury of one of our servants, who got a piece driven right under his nail. I know for a fact that Sergeant Martin had no less than nine penknives to sharpen. It was quite a novel sight to see all the writing-desks brought out, which had not made their appearance for a couple of months; and judging by the reams of paper visible, more than one visit must have been made to the depths of the hold.

“I must not forget to tell you, that I believe attempts will be made to slip into your box sundry articles which are not altogether original, as they have been published already. I can declare that no later than last night, I saw an author bending over his desk, holding a volume of the ‘Spectator’ open with one hand, and thawing the frozen ink in his pen at the lamp, with the other. I need not warn you to be on your guard against such tricks, for it would never do for us to have articles in our ‘Winter Chronicle’ which our great-grandfathers read over their breakfast tables a century ago.”

“Arctic Tribulations—To go out in the morning for a walk, and the moment you put your foot outside the ship, find yourself immersed in the cook’s water-hole.

“To go out hunting, and fall in with a splendid reindeer, take aim, and find your gun has gone off with a flash in the pan, owing to damp powder.

“To set out on a march with a good supply of soft new bread in your pocket, and discover when you want to eat, that it has frozen so hard that you would break your teeth if you attempted to bite it through.

“To rush from the table when it is reported that a wolf is in sight, and on coming back to find the cat has eaten your dinner.”

"To be returning quietly home from a walk, absorbed in profitable meditation, and suddenly find yourself in the embrace of a bear."

On the 6th of May, with the thermometer at only $8\frac{1}{2}^{\circ}$ above zero, they began to cut the ice from about the ships, the men as usual being carefully looked after, and supplied with special equipments to protect them against the weather. On the 12th, the first ptarmigan appeared, and on the 13th, the northward tracks of reindeer and musk-oxen were noticed. On the 15th, two or three flocks of ptarmigans were seen, and thence on "a brace or two were almost daily secured for the sick, for whose use they were exclusively reserved." They had worked twelve days in cutting the ice from around the Hecla when she disengaged herself, like a thing of life bursting its lighter bonds after the chief obstructions had been removed. Seven days later they had a shower of rain which created as much surprise as if they had never seen one, every one hurrying on deck to revel in the almost forgotten sensation. With the cutting of ice to liberate the ships; the hauling, the breaking, weighing, and stowing of stone to ballast them; the making and repairing of sails and cordage; and the various labors of carpenters, coopers, caulkers, and armorers, the vessels and the shore now presented an animated appearance; and the general health was promoted by the abundance of work and the change in temperature. On the last day of May, the commander took a survey of the landscape from an adjoining hill, but it was not very encouraging. "The sea still presented the same unbroken and continuous surface of solid and impenetrable ice, and this ice could not be less than from six to seven feet in thickness, as we knew it to be about the ships. When to this circumstance was added the consideration that scarcely the slightest symptoms of thawing had yet appeared, and that in three weeks from this period the sun would again begin to decline to the southward, it must be confessed that the most sanguine and enthusiastic among us had some reason to be staggered in the expectations they had formed of the complete accomplishment of our enterprise."

On the first day of June, leaving orders to Lieuts. Liddon and Beechey to prosecute the work of preparation, the commander, accompanied by Captain Sabine, Messrs. Fisher, Nias, Reid and seven others, proceeded

to explore Melville Island toward the north. Their provisions and supplies weighed 800 pounds, and were borne on a cart made for the purpose, and drawn by the men. In addition to this general equipment each man carried a knapsack containing clothing and blankets, and weighing about seventeen pounds. Having reached the northern coast of the island on the eighth, they erected a cairn, twelve feet wide and as many high, in which was deposited a tin cylinder containing an account of the trip and a few English coins. On the 9th they crossed a small running stream, the first they had seen. Four days later they discovered in the northwest of the island the remains of six Esquimaux huts. "They consisted of rude circles, about six feet in diameter, constructed irregularly of stones of all sizes and shapes, and raised to the height of two feet from the ground. They were paved with large slabs of white schistose sand-stone, which is here abundant. The moss had spread over this floor, and appeared to be the growth of three or four years. In each of the huts on one side was a small separate compartment forming a recess, projecting outward, which had probably been their store-room; and at a few feet from one of the huts was a smaller circle of stones, which had composed the fire-place, the marks of fire being still perceptible upon them." During the trip, which occupied just fourteen days, they had been able to kill some game, thus securing a healthful and pleasant change from the preserved meats which formed their regular fare. Their only mishap was the breaking down of their cart in descending the side of a ravine on the 10th, after which they carried the remainder of their provisions and supplies on their backs, the officers being burdened with about fifty pounds each, and the men, as more robust, taking some twenty pounds more.

On his return to the ships Parry found the preparations had progressed favorably in his absence; and what was equally gratifying, that the indigenous sorrel plant was so far advanced as to be fit for eating. The men were sent out for an hour or two every afternoon to collect the leaves of this plant, which was found growing all around in great abundance, and of which they consumed a great quantity as a preventive of the scurvy. On the 30th of June their only chronic patient, William Scott,

died; and on Sunday, the 2d of July, he was buried on land with great solemnity and respect. On the 17th the thermometer reached 60°, the highest point marked during their entire stay in Winter Harbor; and the month of July was declared to be the only one in the year which could be said to be at all comfortable in that climate. And yet the ice held them captive until the 30th of July, when the whole body began to move out of the harbor.



CHAPTER XXI.

STRUGGLE WITH ICE—BANKS' LAND DISCOVERED—PROVISIONS DESTROYED—OUT OF DANGER—PARRY ORDERS FULL RATIONS FOR HIS CREW—THE RETURN HOMEWARD—VISIT FROM ESQUIMAUX—DESCRIPTION OF NATIVE DRESS AND MANNERS—ARRIVE IN ENGLAND.

At length they were permitted by the outward movement of the ice to pass into the straits and renew the effort to proceed farther west. But immense quantities of floating ice and the narrowness of the channel left open between the ice-floe and the island, made their progress slow and difficult. At 1 o'clock in the afternoon of the 1st of August, 1820, they weighed anchor, and went hopefully on to contend with their old enemy, the floating ice. The channel was found open to within a mile or two, and at intervals somewhat more. In a few instances the ice had been driven so far south as to leave a short stretch of open water five miles wide, which was the utmost breadth they had found at any time on that coast. With the wind from the westward, and the ice-floe ever and anon driven more or less across this channel, their advance could not be rapid. On the 2d, the wind veering to the south, a heavy floe was driven clear to the coast ahead of the ships, which made it necessary to stop short and seek a temporary harbor. This they found in the shelter of some heavy shore ice, which protected them against the main body of the floating ice. Here the crews of both ships went ashore to collect sorrel, which was found to be too old to be of much value. They heard the growling of a solitary bear, being only the second that they had any knowledge of in those regions during a stay of over ten months.

On the 4th, a mass of ice five miles long and one and a half wide was driven toward them by the wind, but was checked by

the shore ice, which was lodged outside of the ships, and soon after moved off again. Later on, the ice ahead also fell away from the shore, leaving them a narrow channel varying in width from a half mile to two, which they hastened to penetrate. The wind soon failed them, and though they could see a greater expanse of open water beyond, they were unable to reach it. On the 5th, the calm still continuing, they landed, and ascended a hill which they ascertained to be 847 feet above the sea level, when a favorable wind arising, they hurried aboard and scudded to the west for two hours before an easterly breeze. Again the floe loomed to the west of them, closing in toward the land, and they had only time to seek refuge behind some grounded ice along-shore. Here they were detained by the ice and adverse winds until the 23d. It was the most westerly point they reached, and its situation was ascertained to be in latitude $74^{\circ} 26' 25''$, and longitude $113^{\circ} 46' 43''$.

In view of the difficulties that beset them, and shortness of the season for effort in those waters, the commander had already determined on the 16th, with the full concurrence of his officers, that the wisest course left was to sail to the east before it was too late. It was proposed to cross the channel to the north coast of America, if an opening could be found in the ice, in the hope that possibly in a more southern latitude they could yet proceed farther to the west than they had reached. To the land he had discovered on the 8th of August, lying to the westward, but which he could not reach, he gave the name of Banks' Land, in honor of Sir Joseph Banks, president for over forty years of the Royal Society, and a great patron of travelers and explorers. From time to time mention has been made of the active watchfulness of the commander in securing the health of his men as well as the safety of his ships. He had the gratification of now finding his officers and men substantially in as good health as when they had left London more than fifteen months before. They had secured in the twelve months 3,766 pounds of fresh meat—3 musk-oxen, 24 deer, 68 hares, 53 geese, 59 ducks and 114 ptarmigans, and, as has been seen, they gathered anti-scorbutic plants whenever practicable. But the stock of remedies and preventives of the scurvy had been seriously diminished by a peculiar accident which befell their

stores of lime-juice. In the early part of the winter it was found that over two-thirds of the stock had been lost by the bursting of the bottles, and the remainder had been rendered almost worthless by the frost. Where the juice had been frozen, only a small portion of concentrated acid remaining in the center, and when thawed, the juice was but little better than water.

As to the ships, in the last refuge sought, the *Hecla* got one serious nip from an ice floe forty-two feet thick, and the *Griper* had her stern thrown up two or three feet by a cake of ice forced in beneath her by the outer floe; but they were substantially as effective as when they left home. It was therefore wisely decided not to jeopardize the measure of success already obtained, and especially the freedom from disaster, by remaining another winter on that dreary coast, with only the prospect of a few weeks of uncertain effort and inadequate results, after ten months of weary waiting.

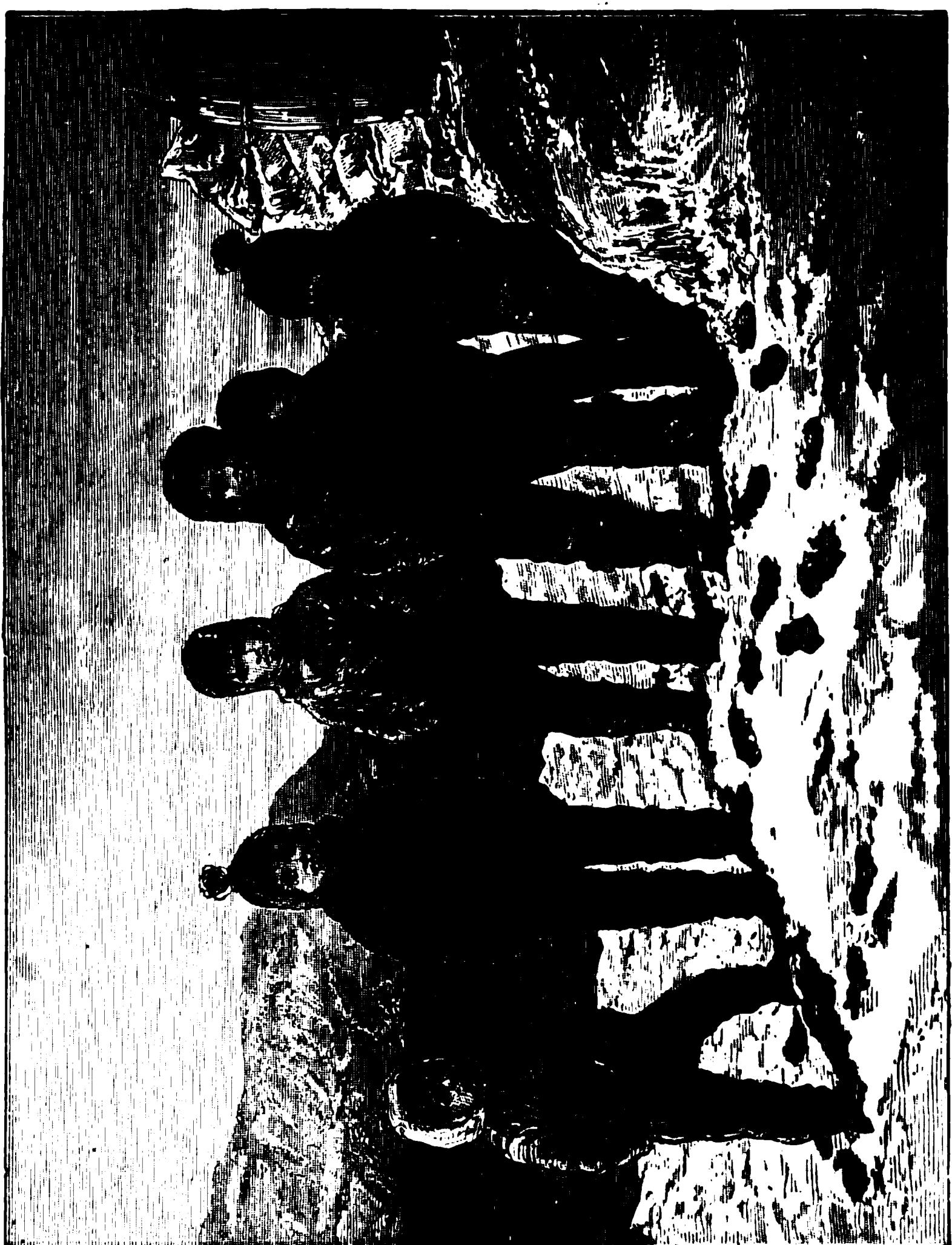
Sailing east, they encountered the same difficulties as on the previous season, in getting into winter quarters; but by careful handling they made some headway, and on the 28th were abreast of Cape Hearne, the western headland of the Bay of the *Hecla* and *Griper*. In five hours they reached the opposite headland of Cape Bounty, and five hours later the channel was free of ice to the width of five miles from the land. On the evening of the 29th they were within four or five miles of where they had been at the same hour twelve months before, going west; and could not help reflecting on the vicissitudes they had since experienced. Passing Prince Regent Inlet, which they had explored the previous year, and finding no other entrance to a more southern latitude, the commander now definitely announced that they were bound for England, and placed the men on full rations. For eleven months they had been restricted to two-thirds of the regular allowance of the British navy, and had also been very sparing in the use of fuel, which contributed even more to their discomfort. Both restrictions were now removed. They had searched in vain through twenty-four degrees of longitude, from 114° to 90° , for an opening through the ice and land to a more southern latitude, and Parry now concluded to proceed homeward to report results, and, if duly

authorized, to refit for another voyage. The month of September, however, they would devote on the way to a careful scrutiny of the western shore of Baffin's Bay, still in the hope of finding an inlet that would lead in some future voyage, to a more practicable westward route than that they had been exploring.

They left Possession Bay on the 1st of September, resuming the use of the mariner's compass, which had been discontinued about twelve months before on account of its inactivity and sluggishness in the more northern regions they had traveled. On the 3d they passed some of the highest icebergs they had seen, being nearly two hundred feet above the surface of the water. The next day, having landed to make some observations, they saw over sixty of those huge icebergs in the distance; and from the masthead far more welcome objects, the masts and rigging of the whalers. These proved to be British, and on the fifth they spoke another, whose captain gave them some news from England, the first they had received since their departure just sixteen months before.

On the sixth, from the islands at the mouth of the River Clyde they were visited by four Esquimaux who approached the *Hecla* in their canoes without any sign of fear or hesitation. They expressed their astonishment at what they saw with loud cries, accompanied by a sort of jumping pantomime which lasted about a minute. The ensuing day they were visited on shore by the commander and some of his officers, and were found to have their tents on the mainland, about forty or fifty feet from the beach. These were their summer quarters, and their huts for winter residence were found farther up toward the head of the cove in a sheltered spot. These were in part excavated out of the side of the cliff, the remainder of each inclosure being constructed of stones after the usual manner. The tents are thus described by Parry: "They are principally supported by a long pole of whalebone fourteen feet high, standing perpendicularly, with four or five feet of it projecting above the skins which form the roof and sides. The length of the tent is seventeen, and its breadth from seven to nine feet, the narrowest part being next the door, and widening toward the inner part, where the bed, composed of a quantity of the small shrubby plant, the *Andromeda*

GROUP OF CHILDREN.



Tetragona [a species of heath plant], occupies about one-third of the whole apartment. The pole of the tent is fixed where the bed commences and the latter is kept separate by some pieces of bone laid across the tent from side to side. The door, which faces the southwest, is also formed of two pieces of bone, with the upper ends fastened together, and the skins are made to overlap in that part of the tent, which is much lower than the inner end. The covering is fastened to the ground by curved pieces of bone, being generally parts of the whale." These rude barbarians were found to be scrupulously honest, exhibiting not the slightest disposition to abstract anything surreptitiously, though opportunities were furnished them to make the attempt. They exchanged their wares to the best advantage, holding back for higher offers, but always yielding when they found they could not carry their customers farther. What presents were made them were received with pleasure and thankfulness; but they could not be induced to drink rum, however much diluted. Detecting it instantly by its smell, they respectfully but unhesitatingly declined to taste it.

The oldest of the four men was over sixty, and being somewhat bent by age did not measure quite five feet in height, and the younger men from five feet four and a half to five feet six inches. The women were four feet ten and four feet eleven inches. The faces of both were round and plump in the younger individuals; skin smooth; complexion not very dark; teeth white; eyes small; nose broad, but not flat to deformity; hair black, straight and glossy, and worn by the females hanging loose over their shoulders. The youngest of the grown females evinced much timidity and natural bashfulness, and from this fact and the absence of tattooing which marked the other women, she was judged to be unmarried. The encampment consisted of eight adults—four men and four women—and some children. These, Parry says, "were generally good looking, and the eldest boy, about twelve years of age, was a remarkably fine and even handsome lad." Their means of subsistence were judged from their appearance and other indications, to be ample, and there was no evidence of disease or suffering. "Upon the whole," says the enthusiastic Parry, "these people may be considered in

possession of every necessary of life, as well as of most of the comforts and conveniences which can be enjoyed in so rude a state of society."

Leaving their Esquimaux friends of the River Clyde, with whom in two days they had an intercourse on ship and shore of only seven hours, they made but slow progress until the 12th, when a favorable breeze springing up from the southwest, they advanced toward the ice. They were again caught in the floes, but got loose after the usual struggle. Four days later in a fog they made the ships fast to the floes and floated with them; and on the 18th, to an iceberg, when they were repeatedly struck by the loose ice, but suffered no serious damage, being strongly built. On the 24th they passed out of the Arctic Circle after having been within it almost fifteen months. All this time they were kept away from the western shore by the accumulation of ice on that side, and could seldom see, much less explore, the coast as they had proposed. Finally, on the 26th, finding all efforts at exploration in that quarter futile, the boats were hauled on deck, and all sail made for home. On the 2d of October the ships parted company in a gale; and on the 16th, the *Hecla* lost her bowsprit, foremast and maintop-mast; but the wreck was soon cleared away, and by the 18th they had raised the necessary jury-masts. On the 29th they made Buchan Ness, on the northeast coast of Scotland, and on the 30th, the commander, accompanied by Captain Sabine, left Peterhead for London, where they arrived on the 3d of November, the *Hecla* and *Griper* reaching the Thames about two weeks later. Both ships and crew were but little the worse for their trip of eighteen months. This alone would have entitled the expedition to be regarded as a success, but was far from being the only claim it had to consideration. Great additions had been made to geographical knowledge; Lancaster Sound had been explored; Prince Regent Inlet, Barrow's Strait, and a number of islands, had been discovered; important meteorological and magnetic phenomena had been observed; and the impracticability of the route through Lancaster Sound for everyday commercial voyages, at least, was amply demonstrated. For, though Parry thought he had reached the Arctic Ocean, and may be regarded as virtually having done so, it was obvious that the passage could not be con-

sidered a highway for ocean traffic, which was after all, the basis of the long-continued search for the Northwest Passage. He had gone far beyond his predecessors, and, like Bylot and Baffin, with their humble equipment two hundred years before, had returned without serious injury to ships or crew; the death of the invalid Scott being fairly attributable to constitutional weakness rather than to any neglect, exposure or disease incident to the voyage.



CHAPTER XXII.

EARLY LIFE OF FRANKLIN—WOUNDED AT NEW ORLEANS—STATEMENT OF THE OBJECTS OF FRANKLIN'S THREE VOYAGES—EMBARKS ON FIRST VOYAGE—THE FIRST ICEBERG—INTERESTING EXPERIMENTS—A LEAK IN THE SHIP—TRADE WITH ESQUIMAUX—ARRIVE AT FORT YORK—MAKE READY FOR OVERLAND JOURNEY.

It is doubtful whether, in the history of England, so proud of her titles, and of the pomp and magnificence which name and wealth can give, there can be found a more remarkable proof of the possibility of rising above adverse circumstances than is seen in the life of the personage whose achievements will occupy the next few chapters. Born in comparative obscurity, and beginning life in the performance of its humbler duties, he rose to a place in the affections of his countrymen, of which any Englishman might well have been proud. He was born at Spilsby, Lincolnshire, April, 1786, and was intended by his father for the church, for whose duties he entered, at an early age, upon a preliminary course of study. While very young, however, he showed a decided taste for the sea; and his father, thinking that a voyage or two would cure him of this untoward inclination, decided to let him go. His first voyage was on a merchant vessel bound to Lisbon. His return home found him so confirmed in his taste that he decided to follow the life of a sailor.

At the age of fifteen, accordingly, he entered the Royal Navy, and sailed in 1801, to Australia, with Capt. Flinders. From this point his life presents a constant succession of noble deeds and brilliant achievements. He served with credit in the war with America, in 1812, and was wounded in the fatal attack upon New Orleans, in January, 1815. Having obtained the rank of Lieutenant, he was appointed commander of the Trent in the Arctic expedition, which sailed under Capt. Buchan

in 1818. After this he was successively raised to the rank of Captain, elected a member of the Royal Society, and finally knighted in view of valuable services rendered. He was twice married, the first time to Miss Eleanor Porden, in 1823, and the second time to Jane Griffin, in 1828, his former wife having died just as he was setting out on his second Arctic voyage.

Franklin was the leader of three distinct voyages, which had for their object the acquiring of more perfect knowledge concerning Arctic ground. His first two voyages had for their particular object to determine the latitude and longitude of the northern shore of North America, and the trending of that coast from the mouth of the Coppermine eastward, and eastward and westward from the mouth of the MacKenzie. His third and last voyage was fitted out for the purpose of discovering a Northwest Passage, which had been supposed, but not found to exist.

The objects of the first voyage more minutely were to discover the latitude and longitude of particular places on the Arctic face of North America, and to determine the trending of that coast from the mouth of the Coppermine to the eastern extremity of the continent; to amend the very defective geography of this coast by particularly noting the location of all important rivers, harbors, and bays, contiguous to the coast; and to take such observations upon the plants, the air, and the animal life of the region as might be useful or convenient. The expedition was fitted out by the English government, and the full leadership intrusted to Franklin, whose able conduct proved the wisdom of the choice. Before sailing he availed himself of the advice and assistance of the directors of the Hudson Bay Company, Sir Alexander MacKenzie, a previous explorer of great success, and many others who could give him intelligent counsel and information. Franklin's success on this occasion was largely, no doubt, enhanced by his fortunate selection of assistants, among whom were Dr. Richardson and Mr. Back, themselves both navigators of experience and ability. To these, and others who accompanied him, he afterward acknowledged his obligation for their valuable assistance, and his satisfaction at being in company with men of so many manly qualities.

The whole party embarked at Gravesend, on Sunday, the 23d of May, 1819. The Prince of Wales, which was to convey the outfit, belonged to the Hudson's Bay Company, and was accompanied by two others, the Eddystone and the Wear. As the wind was unfavorable, the vessels anchored at Yarmouth for several days. At this point Lieut. Back went on shore two or three miles from Yarmouth to attend to some matter of which his presence there reminded him, intending to be ready, by watching the signals, to return as soon as the vessels were ready to leave. The wind, however, suddenly changed soon after his departure, and the Captain, thinking it necessary to avail himself of the present fortune, accordingly weighed anchor, and Mr. Back was left on shore. A note was sent by a returning ship requesting Mr. Back to take the coach across to Pentland Frith; from thence to cross to the Parish of Stromness on one of the Orkneys, and there rejoin the party. When the little fleet reached Stromness several days were spent in waiting for Mr. Back, affording, in the meantime, a good opportunity for testing the instruments, and also of hiring more men, which Franklin foresaw would be necessary to do. A notice to the effect that men were wanted was posted up on the church door at Stromness, this being certain to strike the attention of every person in the parish. To Franklin's surprise only four men were found in the whole parish who could be persuaded to accompany the expedition. Franklin's narrative says:

"I was much amused with the extreme caution these men used before they would sign the agreement; they minutely scanned all our intentions, weighed every circumstance, looked narrowly into our plan of route, and still more circumspectly to the prospect of return. Such caution on the part of the northern mariners forms a singular contrast with the ready and thoughtless manner in which an English seaman enters upon any enterprise however hazardous, without inquiring or desiring to know where he is going, or what he is going to do." It was late in June before the fleet was really under way and had come out into the Atlantic.

July seems to have been more favorable to their progress, as the twenty-fifth of that month found them at the entrance of Baffin's Bay. Here a whaling vessel was met whose master gave thrilling

accounts of the thickness and dangerous character of the ice encountered in Davis' Strait and the upper bay this year, and of the loss of several vessels in the ice. Both passengers and crew now began to watch nervously for signs of icebergs, often mistaking the clouds for mountains of ice, in their feverish curiosity. In a short time it became necessary to tack the ships in order to avoid a large mass; and on the fifth of August



SIR JOHN FRANKLIN.

a huge iceberg was sighted. Upon reaching it, several of the officers made an attempt to climb up its side, but were unsuccessful on account of its steepness and smoothness. The height of this berg was ascertained to be about 150 feet. It will be readily seen that as ice is nearly as heavy as water, only a very small portion of the actual bulk of the ice is

seen above the water. Allowing one-eighth, as the portion of the bulk visible, and supposing the average height of this berg to be 125 feet, its whole vertical side must have been about 1,000 feet, or nearly one-fifth of a mile. The peculiar character of the atmosphere in these regions, however, is said greatly to magnify all physical appearances, and deceive the observer in regard to the size of objects.

About this time some interesting experiments were also made respecting the temperature of water at different depths. A bottle well-corked, was fastened to the sounding-line, and was let down 450 fathoms. The register thermometer was also fastened to the line and was supposed to descend a distance of 650 fathoms. The change in temperature indicated by the thermometer during its descent was from 46° to 40.5° , and it stood at the latter point when taken out of its tin case. The temperature of the water brought up in the bottle was 41° —being half a degree higher at 450 than at 650 fathoms; and 4° colder than the water at the surface which was 45° , while the air was 46° . This experiment in showing the water to be colder at a great depth than at the surface, and to fall in temperature in proportion to the descent, was in accordance with observations of certain other voyagers of those seas, but is stated by Franklin to disagree with his own previous experiments, in which he had always found the water at the surface colder than that at great depth.

On the 7th of August the ship Prince of Wales struck violently on a reef near the coast of Greenland. The rudder was displaced, and there being now no way of guiding the ship, it seemed certain to founder. Recourse to the tow-boats was thought of, but these would be insignificant among the great masses of ice, and the thought was abandoned. Moreover, the shock had produced a rent in the ship's bottom, and the water poured in at a great rate. Another shock, experienced soon after, fortunately restored the rudder to its proper place, but its leak was still a great source of danger. To complete the distress of the now sinking ship, the gale just past had separated her from her associates, and even in case of the last extremity, no aid could be expected of them. The pumps were worked all the time without any apparent diminution of the

water in the hold. Even the women on board, bound for the Hudson Bay colonies, assisted, and as Franklin afterward said, their example did much to stimulate the crew. At last, just as the strength and hope of all seemed about gone, a judicious use of oakum and canvas reduced the leak to such proportions that it could be easily controlled, and the Prince of Wales was enabled to rejoin her comrades in safety.

On the 12th of August the ships landed on the coast of Greenland for the purpose of trading with the natives, or rather of allowing the natives to trade with them, which by signals they had shown they were anxious to do. The Esquimaux met them in their kayaks and accompanied them to the land. They at once evinced a desire to barter, and displayed no small cunning in making their bargains, taking care not to exhibit too many articles at once. Their principal commodities were oil, sea-horse teeth, whale bone, sealskin dresses, caps, and boots, deer skins and horns, and models of their canoes; and they received in exchange small saws, knives, nails, tin kettles, and needles. It is described as amusing to see the exultation and to hear the shouts and laughter of the whole party, when a trade was made by any one, and not a little ludicrous to witness the eagerness with which the fortunate person licked each article with his tongue on receiving it, as a finish to the bargain, and a sort of act of appropriation. In no case did they omit this practice, however small the article; the needles even, passed individually through the ceremony. The women brought imitations of men, women and animals, carved carefully out of sea-horse teeth. The dresses and the figures of the animals were not badly executed, but there seemed to be no attempt at the delineation of countenances, and most of the figures were without eyes, ears, and fingers, to make which would probably have required more delicate instruments than any which they possessed.

The men set most value on saws; *Kutten-Swa-bak*—the name by which they distinguished them, being a constant cry. Knives were next in estimation. An old sword was traded from the Eddystone, and the burst of joy was universal when the happy man received it.

Taking leave of their Mongolian friends, the vessels sailed away for

Hudson's Bay, for it was by this route that the party were to arrive upon the field of their investigations. At this time the great British fur companies were flourishing, and in the height of their prosperity. Trading-posts had been established all the way from Canada to the frozen lakes of the north, and it was along the line of these posts that the party hoped to find assistance to further the prosecution of their voyage. The principal companies were the Northwestern Company and the Hudson Bay Company, the previous kindness of whose agents has already been mentioned. The most considerable depot of British trade was Fort York, or York Factory, as it was then called, situated on the Hayes River about five miles from its mouth. Remnants of the old fort still remain as a dim reminder of that primitive industry.

To this point, then, the Prince of Wales, having parted company from the other ships, took her course, where a schooner was to be furnished to the expedition, and where Franklin hoped to obtain advice, instructions, and a native interpreter. Having reached York Flats, where they were treated to the honor of a salute, the next step was to supply themselves for their northern tour.

Failing to find any Esquimaux or Indian interpreters here, they were obliged to run the risk of having one sent to them, or of picking one up on the way. As no schooner was available, the best boat belonging to the Hudson Bay Company was fitted out for them, and duly supplied with the necessaries which the combined experience of all told them the occasion would require.

The reader would not thank us to give the minute details of this journey, nor is it possible, within the intended scope of the present volume, thus to enlarge upon unimportant experiences. Only the leading facts, therefore, and such of the salient features of the expedition as it is possible to give without the risk of being tedious, will be narrated.

Hayes River was ascended to its source—the confluence of the Shamatawa and Steel Rivers. The latter named stream and Hill River were next successively ascended. Owing to the rapidity of these streams it was necessary to walk upon the bank the most of the way, and haul the boat, with its load, up over the rushing current. At this rate their pro-

gress was only ten or twelve miles a day, and even thus every man sank down exhausted at night. Many thrilling episodes might be related of this slow and tedious journey. At one time, on the bank of Hill River, Franklin was superintending the transportation of supplies over some rapids, when a stratum of loose rock gave way under his feet, and he had the misfortune to step from the summit where he was standing, into the river below two of the falls. His attempts to regain the bank were for a long time unavailing, and it seemed as if the expedition were fated to be deprived of its gallant leader. The rocks within his reach were worn so smooth by the action of the water that, although he made desperate efforts to stay his downward course, it was impossible. Finally he grasped some willows, and was able to hold on until some gentlemen came to his rescue in a boat. It was a very narrow escape, and an experience which he did not care to repeat.

We must not omit to mention briefly a small island noticed in one of these rivers, which is so strongly magnetic as to render a common compass entirely useless anywhere in the range of its influence. Having been previously informed of its existence, they watched their compasses carefully, and found that they were affected at the distance of three hundred yards, both on the approach to and departure from the center of the inlet. On decreasing the distance the instruments were rendered entirely powerless, and upon landing it was evident that the general magnetic influence was entirely overpowered by the action of the ore in the island.



CHAPTER XXIII.

FRANKLIN'S JOURNEY TO FT. CHIPEWYAN — PROCURING GUIDES —
SPEECH OF AN INDIAN CHIEF — THE RESOURCES OF THE PARTY
—START FOR THE COPPERMINE — THE CHIEF REFUSES TO PRO-
CEED — CANOE PARTY SENT TO THE COPPERMINE — A PEDES-
TRIAN TRIP — RETURN OF BOTH PARTIES.

Swampy Lake, Jack River—all the chain of rivers and lakelets up as far as Ft. Chipewyan, were slowly and with difficulty ascended. Some terrible hardships were experienced. It was necessary, for a considerable portion of the distance, to drag the boats and canoes, and to carry by land this bulk of supplies over the "portages," or places where the rapids were too extensive to permit of navigation. Those who took upon themselves the difficult task of supplying fresh provisions from the settlements, traveled thousands of miles back and forth, amid frightful dangers from threatening famine, from unfriendly natives, and from the unfamiliarity of the way. The miseries endured during the first journey of this kind are said to be so great that nothing could induce the sufferer to undertake a second while under the influence of present pain. He feels his frame crushed by unaccountable pressure; he drags a galling and stubborn weight at his feet, and his track is marked with blood. The dazzling scene affords him no rest to his eye—no object to divert his attention from his own agonizing sensations. When he arises from sleep half his body seems dead, till quickened into feeling by the irritation of his sores. But, fortunately for him, no evil makes an impression so evanescent as pain. He soon forgets his sufferings when once removed from them, and at each future journey their recurrence seems to be attended with diminished acuteness.

The arrival at Ft. Chipewyan, however, was but the beginning of adventures and hardships. The plan was now to journey northward to

Ft. Providence on Great Slave Lake; to build a large canoe, suitable for traversing the northern rivers; to engage Indian guides, and if possible, Esquimaux interpreters; to proceed to the mouth of the Copper-mine, and from that point to address themselves to the particular service for which the expedition was planned, viz., the exploring of the American coast on the north, and the systematic arrangement of the knowledge thus gained.

Their principal canoe, when completed, was thirty-four feet long, four feet wide in the middle, and about two feet deep. It was capable of carrying about a ton and a half, including the weight of the five or six men necessary to man it. Besides this there were other and smaller canoes, fitted for the more rapid and easy conveyance of the officers and guides. The agents of both companies, in the meantime, did the party the greatest courtesy possible—furnishing them all the necessaries they could possibly spare, and showing a disposition to aid them in every way in their power. Particularly was the agent of the Northwestern Company useful to them in the matter of procuring guides from among the Chipewyan Indians. This was of necessity a matter requiring the utmost caution. It was necessary to take every possible measure to gain the confidence of the Indians, not only for the sake of getting out of them all the aid and information possible, but also for the sake of safety; for among the northern tribes of American Indians the least departure from truth or supposed consistency is esteemed a positive breach of faith, and is never forgotten. On the occasion of engaging guides at this time, the chief of the party interviewed advanced with the utmost gravity and began his harangue, which Franklin understood had been several days in preparing. This chief proved to be a shrewd, penetrating man, and left a favorable impression upon the minds of the party as to his intellectual qualities. He began by stating that he was glad so powerful a chief from among the pale-faces had come among them, and assured him that the Indians loved those whose purpose it was to assist them. He said that when the party first arrived he was greatly disappointed; for he had heard there was among them a mighty medicine man who possessed the power of restoring to life the dead and de-

parted; and he had felt so great delight in the prospect of meeting with his friends, that his sorrow in finding himself mistaken could not be described. He was ready, however, to assist the new comers in whatever reasonable enterprise they might engage. He closed his speech by demanding to know minutely the object of the adventurers, and their plans for the future.

In his reply Franklin took pains to assure him that their purpose was nothing but good; that they saw the difficulty under which their red brethren labored, and that he hoped by becoming more familiar with the coast and the wilds of the north, to be able to relieve not only their embarrassments but those of all the inhabitants. He informed them that he came from the greatest chief in the world, who was also the sovereign of the companies with whom they were in the habit of trading. He further warned them of the folly of making war with the Esquimaux, and promised them, in case of faithful service, a reward of cloth, beads, and useful implements of iron.

The chief admitted that his tribe had made war upon the Esquimaux, but promised to desist; recommending, however, that their advances toward them should be conducted with the utmost caution; and signified at last their willingness to accompany the party and co-operate with them in every particular.

An agreement having thus been arrived at with the Indians, the expedition at once prepared to set out. The Indians were sent out ahead, and were to encamp upon the Yellow Knife, a small stream whose ascent lay in their way; while the residue of the party were to pack the provisions and supplies. This process could not be gone through with in the presence of the Indians, as they were in the habit of continually begging for everything they saw. The store consisted of two barrels of gunpowder, one hundred and forty pounds of ball and small shot, four fowling pieces, a few old trading guns, eight pistols, twenty-four Indian daggers, some packages of knives, chisels, axes, nails, and fastenings for a boat, a few yards of cloth, some blankets, needles, looking-glasses, and beads; together with nine fishing-nets of different sizes. The provisions included two casks of flour, two hundred dried reindeer

tongues, some dried moose meat, portable soup, and arrow-root sufficient in the whole for ten days' consumption, besides two cases of chocolate, and two canisters of tea. The party now consisted of twenty-eight persons, including the wives of three of the Canadian voyagers who had been engaged at Ft. York. It had been decided best to take the women, as they might be useful in the making of shoes and clothing, in caring for the sick, and in many other ways.

Over a year had now been consumed in reaching their present position. On the 2d of August, 1820, the whole party, including the Indians, began the ascent of the Yellow Knife. The prospect of reaching the Coppermine that season, and of exploring a portion of country hitherto untrod by white men, was a source of the greatest elation to the party, and the start was made in high spirits. The character of the rivers, whose course it was necessary for them to traverse, was such that frequent portages, or transporting of the boats and lading above the rapids by land, was the only method of procedure. Great care was taken from time to time to replenish their stock of provisions so far as possible, from the lakes, and by means of the rifles of the hunters. In spite of this, however, the journey, made longer by the necessarily slow progress, became so tiresome, that the party suffered much from fatigue and lack of food. They were at last reduced to such straits that the Canadian voyagers absolutely refused to go farther, unless more food were at once issued to them. Franklin took occasion here to warn them that in case any of them should desert or refuse to accompany the expedition, he would certainly cause severe punishment to be inflicted upon them; and gave them a thorough admonition not to further hinder the progress of the party. This discussion had the desired effect, and thereafter the Canadians were models of endurance and faithfulness. The hunters, in the meantime, became more successful; fish was more abundant; and the spirits of the party being raised by the prospect of plenty of food, some distance was completed in the most cheerful manner possible.

But a new difficulty arose which effectually thwarted the purpose of the leader to approach the seaboard this season. On the 25th of August, the party having advanced some five hundred miles from Ft. Chipewyan,

and being still some distance from the Coppermine, slight evidences of winter began to appear. The little pools of water by the river side were frozen over and the vegetation showed signs of having been affected by the frost. These signs soon passed away with the rising of the sun, and would have been forgotten, had not the Indian chief abruptly declared that he and his hunters would go no further. He said that it would be a useless sacrifice of life to attempt to go so far north in the winter months; that geese had been seen flying south, and that winter would speedily be upon them. Franklin replied to this that he had instruments which told the state of the air, and by which they could predict the weather beforehand; and that he was not inclined to believe the winter to be so near at hand as the chief apprehended. He also told him that they should at least reach the river, in order to take observations as to its size, depth, and the character and quantity of timber upon its banks. He informed the chief, moreover, that an eclipse was soon to take place, and that it could be much more favorably witnessed from the latitude of the Coppermine. These remarks, however, had no effect upon the chief, who continued: "If after all that I have said you are determined to sacrifice your life and the lives of your crew, some of my young men shall go with you; for it shall not be said that we led you hither and left you to perish alone. But if they go, I and my friends will from the day they depart mourn them as dead." Finding the chief still averse to going on, and fearing a rupture with the Indians, which would be disastrous to them in their great need of guidance, Franklin determined reluctantly to encamp there for the winter. This arrangement completely satisfied the chief, who now renewed his professions of loyalty to the expedition.

After a consultation with the officers it was decided to send a party to the Coppermine, to ascertain its distance and size. When this plan was communicated to the chief he readily concurred, and offered to send some of his hunters to procure food for them. Mr. Back and Mr. Hood, who have already been mentioned in the narrative, were chosen to take charge of the party. An Esquimaux interpreter having been in the meantime secured, he, with one Indian as guide, and eight Canadian voy-



FORT ENTERPRISE.

agers, constituted their attendance; fitted up with canoes, and furnished in the most comfortable manner possible under the circumstances, they set out toward the last of August. Franklin's regard for his men, and his wisdom in planning, are alike seen in his instructions to the party. They were to proceed as far as the Coppermine, and if the weather was not too threatening, to embark upon it and descend it for some distance, the object being to gain more definite knowledge of its rapidity and the best method of navigating it. In no case, however, were they to go so far as not to be able in a short time to return; and if the water proved as cold as 40° they were to return at once, as it was feared that the canoes might be frozen in, thus compelling them to return a long distance on foot.

The portion of the party that remained immediately prepared to establish permanent winter quarters at the spot where they were encamped. Huts were made, which in addition to the tents, were to serve as shelter. The flesh and skins of animals were gathered to serve as food and clothing which the Canadian women were busy in preparing; and the barren, deserted plain presented, this winter at least, the appearance of a bustling, thriving village. Here, in the reach of hostile natives, and greeted nightly by the howling of wild beasts, in a latitude 20° north of where they were accustomed to spend the winter, these hardy men made ready to endure six months of the northern blast. This spot was fitly termed Ft. Enterprise.

Shortly after the party above referred to had been dispatched, Franklin and Dr. Richardson decided to take a pedestrian trip to the nearest point of the Coppermine. They started off on this daring project accompanied by three attendants, carrying camp kettles and provisions. Their guides led them from the top of one hill to the top of another in as direct a course as the numerous lakes with which the country is interspersed, would permit. At noon of the first day a remarkable rock with precipitous sides was reached, named by the Indians Dog-rib Rock, from a ferocious tribe of Indians who inhabit the north and west. The latitude of this place was observed to be $64^{\circ} 34'$. They were now traveling through a country almost destitute of vegetation or animal life. One of the guides killed a reindeer, and offered the rest of the party, as

a great treat, the raw marrow from the hind legs of the animal, of which all but Franklin partook. He, too, however, afterward conquered his fastidious appetite and pronounced it delicious.

The small quantity of bedclothing brought with them, induced most of the party to sleep without undressing. Old Kes Karrah, the Indian guide, followed a different plan. He stripped himself to the skin, and having toasted himself over the embers of the fire for a short time, crept under his deerskin and rags, previously spread out, and coiled himself up in a circular form, and was sound asleep almost instantly. So the journey to the Coppermine continued, the travelers sometimes lying, and sometimes sitting down to sleep at night, according to the accommodations which the rough ground afforded. The fall of snow was almost constant; and, hindered and perplexed by this, and by sprained and swollen ankles, the little band were well nigh exhausted when at last they arrived once more at Ft. Enterprise. They had walked about 150 miles.

Upon their arrival at the winter quarters they found that the party, headed by Back and Hood, had preceded them by several days. This party had reached the shores of Point Lake, through which the Coppermine River flows, on the first of September. They proceeded along its shores westward, round a mountainous promontory, and perceiving the course of the lake to be northwest, they encamped near some pines, and enjoyed their first good fire since they left.

The principal object of their investigation, now, was to discover whether any arm of the lake branched nearer the fort than that upon which they had fallen, to which the transport of their goods might be made the following spring. Having satisfied themselves by the appearance of the mountains that further examination on the west was needless, they then proceeded eastward until the 6th. Not finding any part of the lake nearer, they encamped to observe the eclipse which was to occur on that day, but a violent snowstorm obscuring that phenomenon, they retraced their steps toward the fort, where they arrived the day after the other party had set out.

Thus closed the voyages of 1820, the expedition having traveled fifteen hundred and twenty miles, since leaving Ft. York in Sept., 1819.

CHAPTER XXIV.

JOURNEY TO THE COPPERMINE—VISIT TO THE COPPER MOUNTAINS—
CURIOS ADVENTURE OF DR. RICHARDSON—EMBARKING ON THE
POLAR OCEAN—PT. TURNAGAIN—THE RETURN—TERRIBLE SUF-
FERINGS OF THE PARTY — DR. RICHARDSON RISKS HIS LIFE TO
SAVE THE PARTY—ARRIVAL AT FT. ENTERPRISE.

In the summer of 1821 the party again set out for the Coppermine, which was reached, without accident or adventure of note, in the latter part of June. The time had now come when they were to realize the fulfillment of their cherished project, and they soon embarked upon the river and were on their way to the Polar Ocean. During the journey down the Coppermine the Indians were invaluable in procuring food for the party, by their skill in hunting. For this service they consented to take notes on the Northwestern Company, payable at Ft. Chipewyan, an order having also been drawn for a small amount of clothing as an additional present. This method of reimbursing them was resorted to because those articles with which they were accustomed to be paid were growing scanty, and it was desired to retain them for trade with the Esquimaux.

As the party descended, the river gradually became contracted between lofty banks to about one hundred and twenty yards in width, and the current became rapid in proportion to the narrowness of the stream. About the middle of July they arrived at some rapids which had been the theme of discourse among the Indians for several days previous, and which had been declared by them to be impassable for canoes. The river here was found to descend for three-quarters of a mile in a deep but narrow and crowded channel, which it had cut through the foot of a hill five or six hundred feet in height. It is confined between perpendicular cliffs, resembling artificial stone walls, varying in height from eighty to



Jules

W. HULLIDGE.

DR. RICHARDSON'S ADVENTURE WITH WOLVES.

one hundred feet, on which lies a mass of fine sand. The body of the river pent up within this narrow chasm, dashed furiously around the projecting rocky columns, and discharged itself at the northern extremity in a sheet of foam. It is probable that the Indians in reality knew little of these rapids; for the canoes when lightened of their burden ran through this defile without sustaining any injury.

In the course of the descent a visit was made to the Copper Mountains. To these hills the Copper Indians, and, it was reported, the Esquimaux also, were accustomed to come and search for this metal, of which, when found in a free state, they could make various useful articles. But the impracticability of navigating this river from its source, and the absence of material for making and operating a smelter, proved to Franklin and his men that any considerable mercantile speculation in this enterprise was impossible.

As the Esquimaux country was approached, the expedition advanced with great caution, to prevent any serious collision of the red men with their Mongolian neighbors. Constant watches were kept day and night, and the officers cheerfully took their turns with the rest in this duty. It was on one of these occasions that Dr. Richardson, the surgeon of the party, met with the following curious adventure: "One night, while on the first watch, he had seated himself on a hill overhanging the river; his thoughts were possibly occupied with far distant scenes, when he was aroused by an indistinct noise behind him, and, on looking round, saw that nine white wolves had arranged themselves in the form of a crescent round him, and were advancing apparently with the intention of driving him into the river. He had his gun in his hand, but did not dare fire for fear of alarming any Esquimaux who might be in the neighborhood. Upon his rising they halted, and when he advanced toward them in a menacing manner, they at once made way for his passage down to the tents."

Having reached the mouth of the Coppermine, the journey of exploration eastward, and the final return to the west and south, was one almost unbroken series of terrible sufferings, hardships, and privations. On the 21st of July, with only fifteen days' provisions on board, they

embarked upon the open sea, intending, if possible, to reach Repulse Bay, a distance of some six or seven hundred miles to the east. But they encountered frightful storms. Their boats were badly shattered, and their provisions, to which they had been unable to add any amount, were almost gone. The crew complained bitterly, and it would seem that the climax of discouragement had been reached when their best boat sank; the crew, and what scanty supplies they had, narrowly escaping destruction. Accordingly, when they reached a place, now pertinently called "Point Turnagain," it was decided to steer westward at once, to Arctic Sound, and by ascending Hood's River, to gain once more the interior. Thence they sought to reach Point Lake and Ft. Enterprise, their previous winter quarters. The prospect was discouraging in the extreme, for winter seemed to be already setting in. The hunters found no game, and their stock of pemmican was exceedingly limited. In spite of the threatening weather, their dilapidated canoes and exhausted larder, they managed to push on till at last they entered Hood's River.

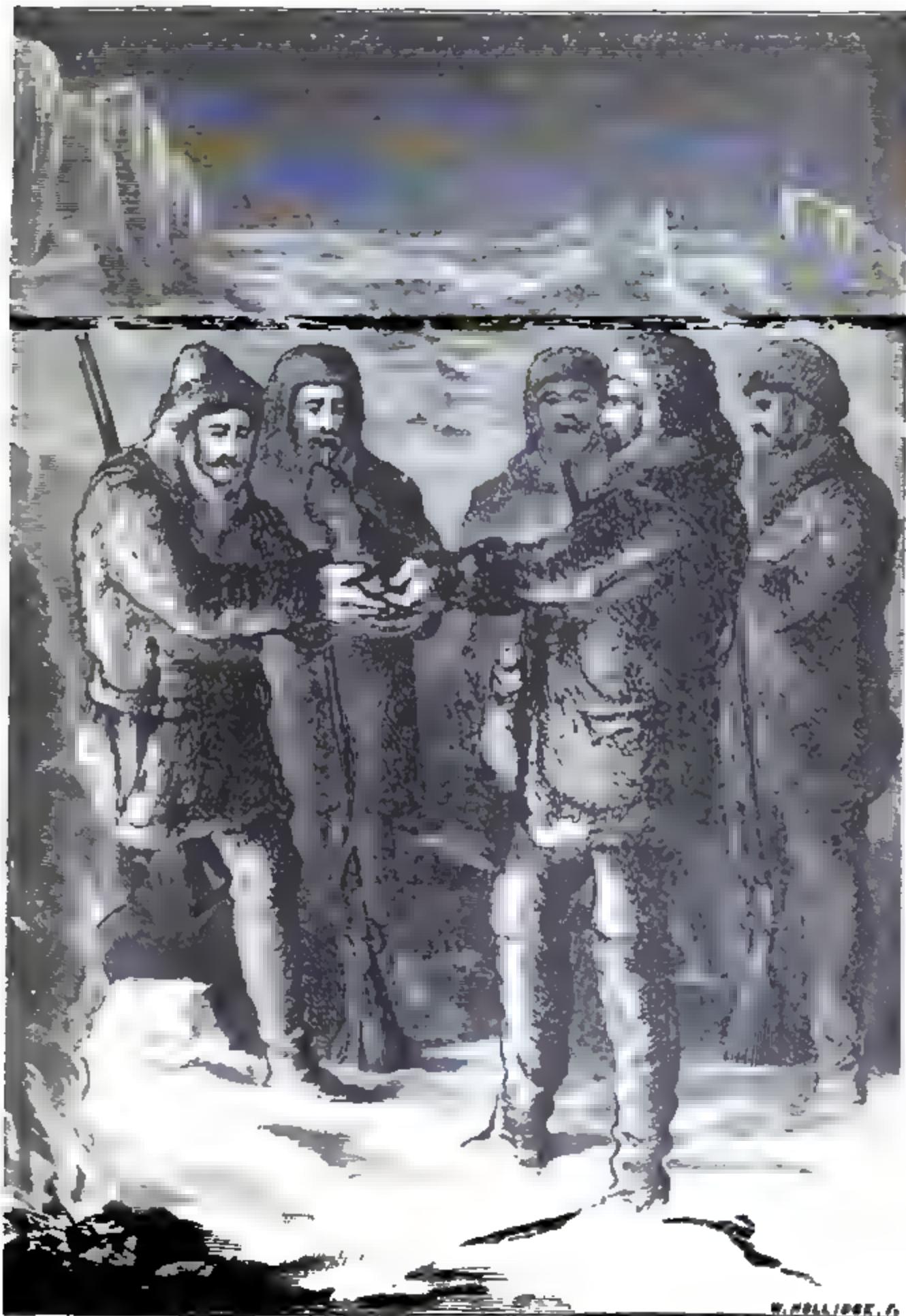
The Canadians could not restrain their joy at having turned their backs on the sea, and they spent the first evening in talking over their past adventures with much humor and no little exaggeration. They had displayed great courage in encountering the dangers of the sea, magnified to them by their novelty. The poor Frenchmen, no doubt, found a distressing difference between the frozen plains of the North, and the vineyards of their "Sunny France," which some of them, perhaps, remembered.

After remodeling two canoes from the remains of the old ones, which had been rendered almost useless, they proceeded on foot from near the mouth of Hood's River toward Point Lake, 150 miles distant, and as will be remembered, in the neighborhood of Ft. Enterprise. It is impossible to describe the sufferings of the exhausted crew from this point. They had scarcely set out when a bewildering snowstorm arose which so embarrassed their progress that they were obliged to encamp for several days. When at last the storm abated, and they attempted to advance, Franklin fainted from hunger and sudden exposure. He soon revived,

however, by taking a small quantity of portable soup, pressed upon him by the kindness of the men. So, with their wet garments freezing to their backs, and limbs tottering from sheer exhaustion, they went miserably on. The men who carried the canoes were often blown over, and at one of these times the best canoe was broken in pieces. This was soon utilized by making a fire of it to cook the little remaining soup and arrow root. The only source of subsistence left them was the *tripe-de-roche*, a species of lichen which grows upon the rocks or frozen earth. This, although it served to keep life in them, was debilitating and unwholesome. An incident occurred at this time which shows that even in circumstances as trying as those which we have described, the utmost generosity and disinterestedness may be shown. One day, as the officers stood shivering around a small fire, and suffering intensely from the pangs of hunger, Perrault, a Canadian, produced a small amount of meat which he had saved from his own allowance, and presented each of them with a piece of pemmican. "It was received," says Franklin, "with great thankfulness, and such an instance of self-denial and kindness filled our eyes with tears."

At length they reached a branch of the Coppermine, of such great width and rapidity that it could not be crossed as readily as the smaller streams which they had been in the habit of fording daily. A raft had to be made, whose construction, in their present weakened state, occupied several days. What was their disappointment and chagrin to find that their new transport was useless; they could not get it across the river. Another exhibition of self-sacrifice was then made. Dr. Richardson volunteered to make the attempt to swim across the river, carrying with him a line, by which the raft could be drawn across.

He launched into the stream with the line around his waist; but when he had got within a short distance of the opposite bank, his arms became numbed with cold, and he lost the power of moving them. Still he persevered, and, turning on his back, had nearly gained the opposite shore, when his legs, too, became powerless, and to the infinite alarm of his comrades on shore, he began to sink. They instantly hauled upon the line and he came upon the surface, and was gradually drawn ashore in



R. HALLIBURTON

PERRAULT DIVIDING HIS STORE.

an almost lifeless state. Being rolled up in blankets, he was placed before a good fire of willows, and fortunately was just able to speak enough to give some slight directions respecting the manner of treating him. He recovered strength after a time, and in the evening was able to be removed to his tent. It was then found that his whole left side was deprived of feeling, in consequence of sudden exposure to too great heat. He did not recover from this until the following summer. What all felt, upon seeing the skeleton shown by the doctor when he stripped, cannot be told in words. His condition, as well as that of the rest, may be best explained by an extract from his own journal:

"It may be worthy of remark, that I should have had little hesitation in any former period of my life at plunging into water,—even below 38° Fahrenheit; but at this time I was reduced almost to a skeleton, and like the rest of the party, suffered from degrees of cold that would have been disregarded in health and vigor. During the whole of our march, we experienced that no quantity of clothing would keep us warm while we fasted; but on those occasions on which we were enabled to go to bed with full stomachs, we passed the night in a warm and comfortable manner."

The river was at last crossed, but a great depression of spirits existed in the case of every one. Hood, Richardson, and Back, were all lame and weak. The *voyageurs* were somewhat more vigorous, but did not hope to come out of the wilderness alive. Finally, Franklin and eight men decided to push on toward Ft. Enterprise. Three of these died almost at once. Franklin succeeded in reaching the house, but found neither occupants nor provisions. In eighteen days Back and Dr. Richardson came up. Hood had set out with a party of three Canadians and one Indian. A short time after his body was found with evidences that he had been murdered. The three Canadians were never seen again. As Michel, the Indian guide, remained strong and vigorous, it was thought he had murdered the rest of the party and feasted upon their bodies. As soon as this suspicion was confirmed he was promptly shot by Dr. Richardson. A partridge, killed by Hepburn, was all the meat that the party last arriving at the Fort had tasted for six weeks. Parts

of their boots and clothing had been consumed during the march, and soup made out of old bones and skin was considered a luxury.

Help and supplies at last arrived, but not until several more of the unfortunate party had perished. The hardships of the survivors, however, were now over. Communication could now be had with the posts of the fur companies, and the persons employed at these points were constrained to the greatest kindness possible when they saw the pitiable condition of the unfortunate crew. The Canadians were sent home at once, being paid in orders upon the Hudson's Bay Company. The officers of the party were obliged to remain some time at one of the forts before they were able to travel far. Their feet and limbs were swollen, digestion and assimilation were impaired, and racking rheumatism was common from the severe and prolonged exposure. Through the kindness of the company's agents, their health was at last restored, and they proceeded to England, where they arrived safely in the summer of 1822—with the exception of the gallant Hood, whose fate we have related above.

Thus terminated Franklin's first voyage, being as far as possible a faithful execution of the plan, as it has already been communicated to the reader.

An account of the next voyage of this gallant explorer will be given in a following chapter.



CHAPTER XXV.

RUSSIAN ARCTIC VOYAGES—LAPTEW BROTHERS—FAILURE OF SCHALAROW—REMAINS OF MAMMOTH—ARCTIC VOYAGES OF BILLINGS—PLUNDERED BY NATIVES—FREQUENCY OF ANIMAL REMAINS—KOTZEBUE'S VOYAGE—UNWELCOME HOSPITALITY—A UNIQUE ISLAND.

Our last reference to Russian Arctic exploration was an account of the final voyage of Behring in 1741. But little was afterward done by the Russians in the way of organized effort in this direction, until the period at which we have now arrived. The whole of the Arctic coast of Russia, including Siberia, had, however, been discovered piecemeal by fur traders and adventurers. "These skins," says a Russian writer, "were the golden fleece of those days and of those regions, and tempted not only Cossacks and fur-hunters to brave the severest hardships, but even induced persons of much higher rank to leave their families and abandon the conveniences of life, in order to plunge into the fearful and unknown wildernesses of Siberia in the hope of enriching themselves by this trade. It is to the credit of the national character, however, that their desire of gain never drove them to the atrocities of which the gold-seeking conquerors of Mexico and Peru were guilty."

Thus gradually had been explored two-fifths of the whole Arctic coast, from the White Sea to Behring's Strait. Piece by piece, too, had a great portion, if not all of it, been surveyed by orders of the government; and much valuable information in relation to the country and its various aboriginal tribes had been gleaned and collected through officials and private adventurers. At the very date of Behring's voyage, the brothers Laptev were winning distinction as explorers in those regions. Lieutenant Charlton Laptev, in May, 1741, sailed down the Taimur River to its mouth, which he ascertained to be in latitude $75^{\circ} 36'$. He

had been engaged since 1739 in exploring the coast west of the Lena, having been appointed to succeed Prontschischtschew, who had tried in vain to double the icy cape of Taimur Peninsula, and had been employed in exploring those inhospitable shores since 1734. Dimitri Laptew had been similarly engaged farther to the east since 1736. Having doubled the Sviatoi Noss of Siberia, he spent his first winter on the Indigirka River, about ten degrees farther east, and in latitude 71° . Proceeding thence he examined and surveyed the coast and the Bear Islands, wintering on the Kolyma River.

He had been preceded in those regions by Paulusky, in 1731. For two successive seasons Laptew now labored in vain to double Baranow Rocks, and returned at length to Iakoutsk in 1743, after a sojourn of seven years on the shore of the Arctic Ocean. In 1758 Schalarow, a merchant of Iakoutsk, sailed from the Yana River, in a vessel built at his own expense, and succeeded in doubling the Baranow Rocks, but failed to make Cape Schelagskoi. Again he tried and again was driven back from that icy goal of his ambition; and the third time, in 1760, his crew refused to support him. In 1763 Sergeant Andrejew, a Cossack, who had been on the Indigirka and the Bear Islands, reported that he had discovered, thirty miles north of the mouth of the Krestovoi, in the estuary of the Kolyma, a group of inhabited islands, with the remains of a fort, and traces of a large population at some previous time. In 1764 Schalarow started anew to solve his personal problem of doubling Cape Schelagskoi, but did not return. "His unfortunate death (from starvation it is said) is the more to be lamented," says Wrangell, "as he sacrificed his property and life to a disinterested aim, and united intelligence and energy in a remarkable degree." The same year Admiral Tschitschagow failed in his effort to sail around the Spitzbergen group. In 1767 Leontjew, Lyssow, and Pushkarow surveyed the coast near the Kolyma.

Meanwhile, on the Kamchatka side, the fur-traders in quest of products for their profitable commerce with China and Japan, had gradually discovered the islands of the North Pacific; Norvodiskow, the West Aleutian, in 1745; Paikow, the Fox, in 1759; Tolstych, the cen-

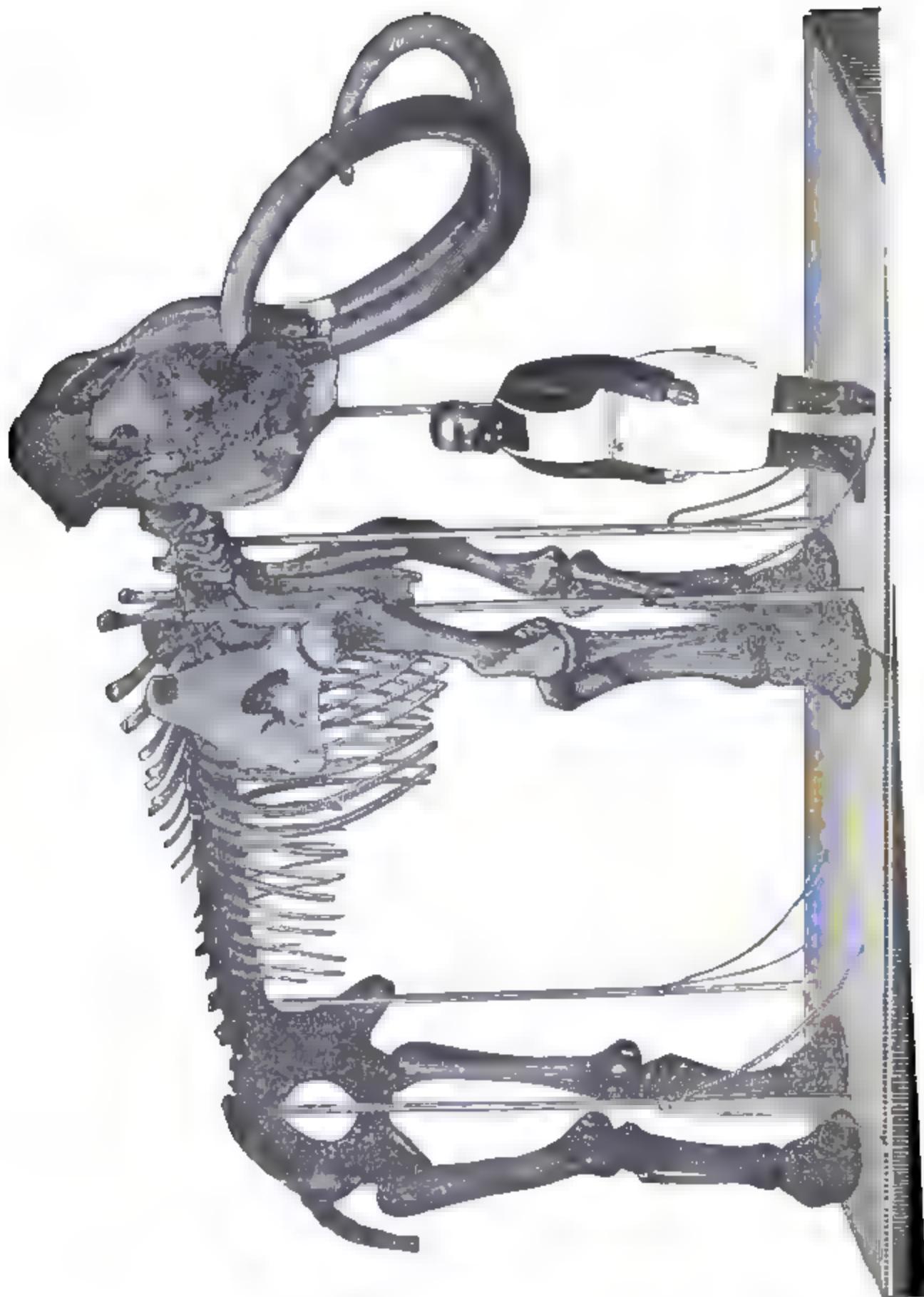
tral group called by his name, in 1760; Glottow, Kadiak, in 1763; and Kreinitzin, Aliaska Peninsula, in 1768. In 1770 a merchant named Lachow or Liakov, while gathering a cargo of fossil ivory about Svia-toi Noss, saw a herd of reindeer making for the Siberian coast from the north, and rightly judged they must have come from land. Proceeding in his sledge over the ice, guided by their tracks, he discovered at a distance of forty miles from the cape he had left, an island, and twelve miles farther a second, both wonderfully rich in mammoth teeth. Duly reporting to the government and securing from it the exclusive privilege to dig for mammoth bones in the islands he had found, Lachow returned, in 1773, and had the good fortune to discover the largest of the three which still bear his name. "The whole soil of the first of these islands," says Saunikow, "appears to consist of these remains."

BILLINGS' ARCTIC VOYAGES.

The great Empress of Russia, Catharine II., in her numerous projects for the promotion of commerce, with the comprehensive sagacity for which she was distinguished, could not fail to recognize the value of exploration, especially within what she regarded as her empire. In furtherance of her design, Joseph Billings, who had been with Cook in his last voyage, was induced to enter the Russian naval service, and in 1787 was intrusted with an expedition for the examination of the north coast of Siberia from the Kolyma River to Behring's Straits. Captain Sarytchew, a Russian, was placed in subordinate command of one of the two vessels constituting the expedition. They sailed down the Kolyma on the opening of navigation, and were much harassed by ice and overflow, which drove them sometimes into the inundated bottom-lands. Reaching the ocean they pushed to the east, getting, however, to only a few leagues beyond Baranow Rocks. The Russian captain volunteered to proceed further by boat, but Billings deemed the project unfeasible because of the ice, and returned to Iakoutsk, leaving his vessels aground in the Kolyma. He was, however, intrusted with a second expedition to explore the islands of the North Pacific, two vessels being built for that purpose at Okhotsk. In June, 1790, Billings visited the Aleutian

Islands, where he found the natives so cruelly treated by the Russian and Cossack fur-traders, that he felt compelled to make an energetic remonstrance to the home government. Despite his efforts and those of the central authority, the local oppression continued without serious abatement, and there, as elsewhere, the aborigines have been almost totally extinguished by overwork and virtual slavery to the whites. From the Bay of Saint Lawrence, Billings proceeded overland on the 13th of August to explore and survey the Tchuktchi Peninsula. His efforts were weak and fruitless; his journeys short, and stoppages frequent; and he won no favor with the natives. Jealous of the Russian surveyors' chains, which they considered typical of the chains of slavery, they did not hesitate to wrest them from their unwelcome visitors, whom they would not suffer to write any notes or observations as far as they could prevent, so that the exploration proved abortive. Sauer, the historian of the expedition, relates a few incidents: "We passed three villages, and halted at a fourth for the night. The huts were dug under ground, covered with earth, of a square form, with a fireplace in the middle, and four large stones made the hearth. We were obliged to treat with them for water, and for fuel to boil our food, and to pay for it immediately. Observing our good nature and want of power, they took a liking to the buttons on our coats, and cut them off without ceremony. The men were tall and stout, and the warrior had his legs and arms punctured. The women were well made, and above the middle size; healthy in their appearance; and by no means disagreeable in their persons; their dress was a doe's skin, with the hair on, and one garment covered their limbs and the whole body. They wore their hair parted, and in two plaits, one hanging over each shoulder, their arms and face being neatly punctured." Captain Billings was still in Iakoutsk in 1793, but his explorations by land or sea did not add much to the volume of geographical information, and his chief merit lies in his humane effort to ameliorate the unhappy condition of the oppressed natives in the Aleutian Islands.

The group of islands known as the Archipelago of New Siberia, was discovered by Sirawatsky in 1806, and explored by Hedenstrom in



SKELTON OF MAMOTH IN THE MUSEUM OF ST. PETERSBURG.

1809. They lie almost due north from Yana Bay, east of the delta of the Lena, between latitude 73° and 76° , and longitude 135° to 150° . They are generally rocky, and are covered all the year round with snow, without bush or tree anywhere. They are uninhabited, but with traces of former population, as well as of large trees and fossilized charcoal.

Their chief importance now is due to the immense quantities of fossil ivory, or bones of the mammoth, which are found embedded in the soil. According to Hedenstrom's account, the tusks are smaller and lighter, but at the same time more numerous toward the north of the islands, and often weigh only three or four poods—108 to 144 pounds—while on the main land of Siberia, it is said, there have been found tusks which weighed twelve poods, or 432 pounds avoirdupois! To this larger growth must have belonged the mammoth discovered in 1799, by Schumachow, one of the Tungusian nomads, while searching for fossil ivory near Lake Ancoul. In 1803 the ice in which it had been enveloped having gradually melted away, this huge carcass fell on a sand bank, where its flesh was so well preserved that it afforded acceptable food for dogs and beasts for at least three seasons. In 1804 the original discoverer carried away the tusks, which he sold for about forty dollars. In 1806 Adams found it where it had fallen, in a mutilated condition, but not entirely divested of flesh. The skeleton was, however, complete, except one foreleg and some joints of the tail. About one-fourth of the skin had disappeared, but the remainder required the united efforts of ten men to remove it to the shore, a distance of only fifty yards. It was of a dark gray color, and was covered with a short, curly, reddish wool, besides some long black hairs, resembling bristles, which varied in length from one to eighteen inches. The animal was a male, and had a long mane; and the whole body was eventually taken to St. Petersburg to grace the imperial museum, while samples of its wool were sent to the principal museums throughout Europe. The tusks were repurchased by the government, and replaced in their original sockets. Its chief measurements are: From the forehead to the end of the mutilated tail, sixteen feet, four inches; height to the top of the dorsal spines, nine feet, four inches; the length of the tusks along the curvature, nine feet, six

inches. Besides the remains of the *Elephas Primigenius*, as it is scientifically named—or primogenial elephant, as it might be popularly called, had not the word mammoth taken its permanent place in our literature—the bones of the rhinoceros, buffalo, horse, ox, and even sheep, have been found, all demonstrating that there was a time when the Arctic regions could have been easily explored had there only been men to do it. And when the men came—though, according to the native legend, “there were once more hearths of the Omoki on the shore of the Kolyma, than there are stars in the clear sky”—they were hardly the men to busy themselves overmuch with scientific researches, or to leave records to posterity. The Omoki have now disappeared from even the mainland, and the islands of New Siberia are alike untenantable by man or beast.

KOTZEBUE'S ARCTIC VOYAGE.

To these surveys of the northern coast and islands of Siberia was added a genuine Arctic voyage of exploration in 1815. To the public spirit and zeal for knowledge of Count Nicholas Romanzof, or Riomantsof, who had been made Secretary of State in 1807, was Russia indebted for this expedition. It consisted of one vessel of 180 tons, which was intrusted to Lieut. Otto Von Kotzebue, son of the celebrated German dramatist of that name. He had accompanied Krusenstern in his voyage around the world, 1803–6. As his chief companions the scientific count had secured the poet and naturalist, Chamisso, and the physician and naturalist, Eschscholtz. Twenty-two men constituted the crew of their ship, the “Rurik,” so named in honor of the first king of Russia, the famous Varangian chief or Norse Viking, who founded the first Russian dynasty 953 years before. They left Plymouth, England, in October, 1815, and in March, 1816, arrived off Waihu or Easter Island, about 800 leagues west of Chili— $27^{\circ} 6'$ south, by $109^{\circ} 17'$ west—where they were prevented from landing by the natives, who were embittered by the injuries received at the hands of foreign visitors. On the 17th of June they reached the Bay of Avatcha, and pushing north, landed on St. Lawrence Island on the 27th. The inhabitants

had never had any intercourse with Europeans, and now received the visitors with great friendliness and unwelcome hospitality.

“So long as the naturalists wandered about on the hills,” says Kotzebue, “I staid with my acquaintances, who, when they found that I was the commander, invited me into their tents. Here a dirty skin was spread on the floor, on which I had to sit, and then they came in, one after the other, embraced me, rubbed their noses hard against mine, and finished their caresses by spitting on their hands, and then striking me several times over the face. Although these proofs of friendship gave me very little pleasure, I bore all patiently; the only thing I did to lighten their caresses somewhat, was to distribute tobacco leaves. These the natives received with great pleasure, but they wished immediately to renew their proofs of friendship. Now I betook myself with speed to knives, scissors, and beads, and by distributing some, succeeded in averting a new attack. But a still greater calamity awaited, when, in order to refresh me bodily, they brought forward a wooden tray with whale blubber. Nauseous as this food is to a European stomach, I boldly attacked the dish. This, along with new presents which I distributed, impressed the seal on the friendly relations between us. After the meal, our hosts made arrangements for dancing and singing, which was accompanied on a little tambourine.” Two days later, as they sailed away to the north, past the island, the natives killed a dog in view of them, perhaps as a sacrifice to the departing Europeans.

Passing through Behring’s Strait, they arrived on the 1st of August within a broad bay or inlet, beginning at $66^{\circ} 42' 30''$ by $164^{\circ} 14' 50''$, which they proceeded to explore with great zeal, hoping perchance to find the long-sought communication with the Atlantic. They spent a fortnight in its survey, and thought at one time to find a passage south to Norton Sound. It proved, however, to be everywhere surrounded by land, and was named Kotzebue Sound, while a considerable island and bay discovered during their exploration were named respectively Chamisso and Eschscholtz, in honor of his companions, the naturalists. The attention of these gentlemen was attracted to a remarkable—and as far as known unique—island. It had an elevation of about 100

feet, and the appearance of a chalk cliff, but on closer observation proved to be a mass of ice, on which had been deposited in the course of ages, a layer of blue clay and turf-earth, only six inches thick, but covered with luxuriant vegetation. "The ice must have been several hundred thousand years old," says Nordenskiöld, in describing this find; "for on its being melted a large number of bones and tusks of the mammoth appeared, from which we may draw the conclusion that the ice stratum was formed during the period in which the mammoth lived in these regions." Its ascertained latitude was $66^{\circ} 15' 36''$, and it was thoroughly re-examined by Dr. Collie, the surgeon of Beechey's expedition in 1827, and still later by the traveler Dall.

Leaving Kotzebue Sound on the 15th of August, for the Asiatic side, they beheld the wide-spread Arctic Ocean, quite free from ice as far as the eye could reach, and might perhaps have reached what is now known as Wrangell Land, had they pushed boldly to the north. A contrary course was taken, and returning through Behring's Strait, they wintered far to the south on one of the group of islands to which Chat-ham, Calvert, and Nautilus belong. In 1817 Kotzebue set out for the north, but being violently thrown against one of the ship's timbers in a gale, he lost his health and courage, and other difficulties not being wanting, he returned to Europe without having again penetrated the Polar Sea, arriving at home in 1818. He made a voyage around the world, 1823-6, which is foreign to our subject, and died in 1846, in his fiftieth year.



CHAPTER XXVI.

RUSSIAN EXPEDITIONS—WRANGELL—WOOD HILLS—DESCENT OF THE LENA—FATHER MICHEL—CLOTHING FOR WINTER PROCURED—START FOR CAPE SCHELAGSKOI—A SLEDGE LOADED—TENTING IN THE ARCTIC REGIONS—SEVERE COLD—RETURN RIVER—TRADING BRANDY TO NATIVES—A SIBERIAN FAIR—UNWELCOME HOSPITALITY—A TCHUKTCHI DANCE.

Two small exploring expeditions, or rather one expedition in two divisions, was organized by the Russian naval department in 1820, each under command of a lieutenant, with two junior officers, a medical officer, who was also to be a naturalist, and two seamen, one a smith and the other a carpenter. Their instructions, including explanatory preamble, were as follows: "From the journals and reports of all other expeditions undertaken to the Polar Ocean, it appears that it is impossible to navigate it for scientific purposes even in summer, owing to the presence of immense quantities of drift-ice. On the other hand, it is known that Sergeant Andrejew drove over the ice in the spring of 1763 with sledges; and the same was done by Messrs. Hedenstrom and Pschenizyn in 1809, 1810 and 1811, when the former surveyed the Bear Islands, and the latter the Lachow Islands and New Siberia. As this appears to be the only practical plan for the execution of His Imperial Majesty's desire, its adoption has been resolved on by the department of the admiralty with respect to the expedition now to be sent. Accordingly the first division of that expedition is directed to proceed in sledges to survey the coast eastward from the mouth of the Kolyma as far as Cape Schelagskoi, and thence to proceed in a northerly direction, in order to ascertain whether an inhabited country exists in that quarter, as asserted by the Tchuktchi and others."

The first division was intrusted to Lieutenant Ferdinand Von

Wrangell, with the midshipman Matinschkin, the mate Kosmin, two seamen—one a carpenter and the other a smith—and Dr. Kyber, surgeon and naturalist, as subordinates. The second was placed in charge of Lieut. Peter Feodorovitch Anjou, with the mate Ilgin and Dr. Figurin, surgeon and naturalist, as subordinates. The results attained by the second division were never formally published, as their papers were accidentally burnt. It is, however, known that they failed to discover the "inhabited country in a northerly direction, as alleged by the Tchuk-tchi and others," which was the main object of both sections of the expedition, and that they surveyed the New Siberia Islands. The remarkable Wood Hills of those islands are thus referred to by Anjou: "They form a steep declivity twenty fathoms high, extending about five versts (three miles) along the coast. In this bank, which is exposed to the sea, beams or trunks of trees are found, generally in a horizontal position, but with great irregularity, fifty or more of them together, the largest being about ten inches in diameter. The wood is not very hard, is friable, has a black color, and a slight gloss. When laid on the fire it does not burn with a flame, but glimmers, and emits a resinous odor." They had been similarly described by Hedenstrom in 1811, who adds some particulars not given by Anjou: "They are thirty fathoms high, and consist of horizontal strata of sandstone, alternating with strata of bituminous beams or trunks of trees. On ascending these hills fossilized charcoal is everywhere met with, covered apparently with ashes; but on closer examination this ash is also found to be a petrifaction, and so hard that it can scarcely be scraped off with a knife. On the summit another curiosity is found, namely, a long row of beams resembling the former, but fixed perpendicularly in the sandstone. The ends, which project from seven to ten inches, are for the most part broken. The whole has the appearance of a ruinous dike." These curious remains afford strong presumptive evidence, that sometime in the vast geological ages of the past, those regions enjoyed a far more temperate climate than now. It is not impossible that another revolution of the globe is slowly progressing, whereby all parts of the earth's surface successively pass under the north pole of the heavens.

The members of the expedition left St. Petersburg on the 4th of April, 1820, and proceeded together as far as Moscow, where Anjou and Kosmin remained behind to procure the necessary instruments for both divisions. Wrangell and Matinschkin pushed on to Irkoutsk, making the journey of 3482 English miles from St. Petersburg in fifty-six days. In June they were rejoined by the other members of the expedition, and on the 7th of July Wrangell's party left the capital of Siberia. On the ninth, having made a rapid land journey of 136 miles, they reached



BARON VON WRANGELL.

Kotschuga, on the Lena, which there becomes navigable. The next day they began the descent of the great river, and on the 4th of August arrived at Iakoutsk, having been twenty-five days making a distance of 1442 miles. This city is the great center of the interior trade of Eastern Siberia. About the middle of August Anjou's division reached Iakoutsk, and Matinschkin went forward in advance of his chief to Nishni,—that is, Lower—Kolymsk, Wrangell following on the 24th of September. His route now lay across country to the northeast, and measured

over 1,200 miles, occupying fifty-one days. Wrangell arrived at his base of operations, Lower Kolymsk—latitude $68^{\circ} 32'$, longitude $160^{\circ} 35'$ —on the 14th of November, having made a journey of 6,300 miles from St. Petersburg in 224 days, of which thirty-six were spent at Irkoutsk and forty-nine at Iakoutsk, besides minor stoppages. The journey was made on horseback, Wrangell and his two companions heading a cavalcade of ten pack-horses strung together, the first and last only having drivers. Between that city and the Aldan River the people were Jakuts of Tartar origin; beyond the Verchoiausk Mountains they met some Tunguses, also of Tartar origin. In crossing the mountains they encountered about equal difficulty in climbing precipices and clearing a passage through the deep snow in the ravines. On the ninth of October they crossed the Yana, and on the 15th, at the station of Tabalog, met Dr. Tomaschewski, who was on his return to civilization after three years' service at Nishni Kolymsk. On the 22d they crossed the Indigirka at Saschiversk, where they enjoyed for two days the hospitality of the venerable Father Michel, aged eighty-seven, who, in a residence of forty years had baptized and instructed in the doctrines of Christianity, about 15,000 Jakuts, Tunguses and Jukahires. Next reaching Lake Orinkino, they entered the district of Kolymsk, and traveling 150 miles over an entirely uninhabited waste, for the most part but little better than a frozen morass, they arrived at the Alasei Range, which constitutes the watershed between the river of that name and the Indigirka.

At Sardach station on the 2d of November, Wrangell heard the first tidings of Matinschkin's safe arrival at his destination, and of the preparations he was there making for the expedition. Crossing a low range of hills which divide the waters of the Alasei from the Kolyma, they arrived at the latter river on the 6th, at the town of Sredne Kolymsk, the official headquarters of the district. Here a day was spent in procuring the heavy fur clothing necessary for the colder region they were hastening to, though the temperature was far from genial where they were, the thermometer ranging on the day of their arrival from 90 to 33° below zero. At length on the 31st of October, on the banks of the Omon, having made their last trip of 185 miles on horseback, they gladly

GERMAN 200 LEVEL



exchanged that means of travel for the dog-sledges of the country, and reached Lower Kolymsk two days later. Here they wintered to recuperate and prepare for the exploring expedition in the spring. The Kolyma at this point is usually frozen over before the middle of September, and so continues until June. During the three summer months, the sun remains for fifty-two days constantly above the horizon, but so near it that he gives but little heat, and may usually be gazed upon with the naked eye without serious inconvenience. The inhabitants are very jealous of the distinction of the seasons, and insist that it is spring when the sun becomes visible at noon, though the thermometer is usually 35° below zero at night; and autumn begins with the freezing of the river, when the thermometer often points to 47° . But visitors are content to divide the year into nine months of winter, and three of summer. In June the temperature sometimes rises to 72° , but before the close of July it sinks to the genial warmth of a pleasant autumn day in more favored climes. In January the thermometer goes down to 65° below zero, thus showing a range of 137° in five months. Clear days are very rare in winter, vapors and fogs almost constantly prevailing. And yet the climate is not unhealthy; catarrh and ophthalmia are common, especially in the foggy period, but scurvy and other dangerous diseases are very rare.

It was the 3d of March, 1821, before they set out for Cape Schelagskoi. The intervening coast is uninhabited, the Russians making occasional hunting excursions as far as the Baranow Rocks, and the Tchuktchi, from the other side, to the greater Baranow River, while the unsubdued Tchuktchis, with their numerous herds of reindeer, roam over the intervening moss-covered plains, and are an object of dread to those who have occasion to cross their territory. Reaching Sucharnoi Island — latitude $69^{\circ} 31'$, longitude $161^{\circ} 44'$ — at the mouth of the east branch of the Kolyma, on the 5th they made their final arrangements for the trip. There were nine dog-sledges with their drivers; and the equipments were as follows: A tent of reindeer skin, with a skeleton frame of ten poles, and the necessary cooking utensils; a bear-skin apiece to lie on, and a double coverlet of reindeer skin for each pair; the

outer clothing of each comprised a fur shirt, or kamleia, an overcoat or outside wrapper of double fur, called a kuchlanka, fur-lined boots, a fur cap and gloves of reindeer skin, with some changes of linen. Each person was supplied with a gun, fifty cartridges, a pike, a knife, and the means of striking fire. The instruments were two chronometers, a seconds' watch, a sextant and artificial horizon, a spirit thermometer, three azimuth compasses—one having a prism—two telescopes, and a measuring line. The provisions for each mess of five for one month were 100 lbs. of rye biscuits, 60 lbs. of meat, 10 lbs. portable soup, 2 lbs. tea, 4 lbs. candy, 8 lbs. grits, 3 lbs. salt, 39 rations of spirits, 12 lbs. tobacco, and smoked *jukala* equal to 1,000 herrings. The food provided for the dogs consisted of frozen and dried fish of different kinds equal to 8,150 dried herrings.

Each sledge carried about 900 lbs. avoirdupois, besides the driver. The whole was so carefully covered and tied down with thongs and straps that nothing could be displaced or injured in the event of a sledge being upset. The driver sits about midway, holding on by a thong which runs from end to end of the sledge, and carrying in the other hand a long staff with a prod or spike at one end and small bells at the other, with which, and his voice, he drives and guides his team, and which he uses also as a support in an emergency. The six provision sledges carried most of the stores, and were to return as soon as unloaded; but a portion was also placed on the traveling sledges of the explorers as a measure of precaution. The latitude of the island was found to be $69^{\circ} 31'$, and the longitude $161^{\circ} 44'$, and the thermometer, at noon, showed half a degree below zero. On the morning of March 6, 1821, they started for the lesser Baranow Rock, twenty-four miles distant, and arrived at a hut erected by Capt. Billings, some thirty-three years before, which they found in a good state of preservation, but filled with snow and ice. Dislodging the boards which formed the roof, they cleared the hut in half an hour, but it proved only large enough to accommodate four persons. The party at this time consisted of Lieutenant Wrangell, the mate, Kosmin, and nine drivers. Seven were housed in the tent. It was found that their observations corresponded with the careful surveys

of Capt. Billings. On their way they had seen the wooden tower erected by Lieut. Laptev, in 1739, at the mouth of the Kolyma.

The next day, with the thermometer at 20° below zero, at noon, they reached the vicinity of the greater Baranow Rock, having made about twenty-five miles. Here they saw the enormous masses of rock noticed by Sarytschew, some of which looked like ruins of vast buildings, and others, colossal figures of men and animals. On the 8th, having made about twenty miles, with the thermometer ranging from four to eleven degrees lower than at noon of the day before, they pitched the tent on the bank of a small stream of good water, beyond which no Russian had penetrated since the ill-fated expedition of Schalarow. Here also they erected a depot of provisions for the return trip. This consisted of four posts driven into the snow, on which was placed a rough box made of driftwood at a height of nine feet. In this were placed the stores, covered with wood and snow. The tent was twelve feet wide at the bottom, and ten feet high at the center; and around the central fire, with their feet toward it, and their bodies radiating from it like the spokes of a wheel, they lay down to sleep, and generally rested well. Rising at six they were ready to start at nine, and usually made their day's journey of twenty miles in eight hours, including stoppages for observations. At night they laid the sledges bottom upward, and poured water on the runners to form an ice-coating, by the help of which they could glide more smoothly over the snow, the drivers always making a special effort to keep on the snow to preserve the smoothness of the runners.

On the 9th they made only twenty miles, a severe snowstorm exhausting the dogs, and the next day their route lay over the sea ice at the distance of a few hundred yards from the shore. As far as the eye could reach they could see nothing but a level sheet of snow, which made traveling much easier for the dogs, but very monotonous for the men. They halted early to make observations for the longitude, which was ascertained to be $166^{\circ} 11'$, and to erect another depot of provisions. At noon on the 11th, a mile from the coast, the latitude was ascertained to be $69^{\circ} 30'$, the longitude $166^{\circ} 27'$. The temperature falling to

37° below zero, it became necessary to protect the dogs by clothing their bodies and feet, while the snow became less smooth, and thus the progress of the animals was doubly hindered, so that they were able to make only fifteen miles. The travelers had now reached the great Baranicha, where the coast gradually rises as it trends to the north. In the distance, to the south and southwest, could be seen the hazy outline of some mountains, and to the north the white glint of a line of ice hummocks. Observations became difficult and uncertain, the instruments being affected by the intense cold, and at a temperature 36° below zero, were discontinued. On the 12th they encamped, after a journey of sixteen miles, at the foot of a hill in latitude 69° 38', and longitude 167° 43', with the temperature at 29°. Here was deposited another lot of provisions. At noon of the 13th they were 5' farther north, and at the foot of a low bluff they saw a Tchuktchi hut, which had the appearance of having been recently occupied. About three miles farther on they entered the strait lying between the mainland and the Sabadei Island of Schalarow, in the middle of which they fell in with several Tchuktchi huts, built of drift larch wood, in latitude 69° 49' and longitude 168° 4'. At noon of the 14th, in latitude 69° 52', they saw from the top of a hill which they ascended for the purpose, a stretch of open water in the distance, extending east and west as far as the eye could reach, with great hummocks of ice to the north, which they had at first supposed was land. Within two miles they identified Laptev's Sand Cape, in longitude 168°; where the low, flat coast gives way to the more elevated surface. At the end of a journey of twenty miles they made a fourth and last deposit, and dismissed the last of their provision sledges.

There now remained Wrangell, Kosmin, and three drivers, and their point of departure was now 69° 58' by 168° 41'. They gave the dogs a day's respite, and on the 16th of March they proceeded toward the hills of the east, but after making thirty-five miles they were compelled to halt for the night among some ice hummocks. Finally, on the 17th, having traveled some eighteen miles, they reached the northwest point of Cape Schelagskoi, with ice hummocks and icebergs all around. Pushing on for five hours longer, during which they had only made five

miles, over hummocks, around bergs, through loose snow, and fighting for every foot of the way, they reached a sheltered cove and encamped for the night. Here they had the good fortune to find some drift-wood, and building a rousing fire—a privilege they had not enjoyed for some days—they recruited their strength, with the Schelagskoi towering west of them to the height of 3000 feet.

With only three days' provisions remaining, Wrangell and Kosmin, leaving one sledge behind to await their return, proceeded to test, as far as might be possible, the theory of Admiral James Burney, recently advanced in England. He conjectured that an isthmus might be found extending from Schelagskoi to the main land of America, north of Behring's Strait. Having gone ten miles east from the camp, at noon of the 18th, they found the latitude to be $70^{\circ} 3'$, and seven miles farther on, with twenty-four miles of coast in view to the east, the main trend of the land was southeast, and therefore not confirmatory of Burney's views. Naming the farthest point seen Cape Kosmin, in honor of his companion, and marking the limit they had reached by a cairn on a hill, in latitude $70^{\circ} 1'$ and longitude $171^{\circ} 47'$, on the bank of a stream significantly named the Return, Wrangell with his three companions returned to camp. They had traveled 241 miles since leaving Sucharnoi Island—an average of twenty miles a day. They erected a memorial cross at the cape, and set out on the return trip the next morning. They reached Staduchin's Wolok (portage) three miles from camp, but farther inland than the route previously taken, and at noon were at $69^{\circ} 44'$ by $170^{\circ} 47'$, and to a cape three miles away in a southwest direction, Wrangell gave the name of his midshipman Matinschkin, then absent on a mission of peace and inquiry among the Tchuktchis. Next day they made across Tschaun Bay to Sabadei Island, and late in the evening of the 21st reached their fourth depot of provisions—none too soon, for they had used up all they had taken with them. It proved their salvation, having escaped the depredations of foxes and wolverines, by which the other three were successively found to have been rifled. To add to their disappointment, no supplies were found at Sucharnoi Island, as ordered, and the hungry travelers—men and dogs—had to wend their way to

Lower Kolymsk, where they arrived on the 26th, having been absent twenty-two days, the last two without food.

The round trip, as made, was 647 miles, or an average of nearly thirty-one miles a day for the twenty-one days actually consumed in traveling.

On the last day of March Wrangell was rejoined by Matinschkin who had been well received by the Tchuktchis, and promised a kind reception whenever the expedition should reach their settlements. They had never seen or heard of a land to the north of their coasts, and here again Burney's theory failed of support. He had left Lower Kolymsk on the 16th of March, accompanied by an eccentric British naval officer, Captain John Dundas Cochrane—surnamed "The Pedestrian Traveler," then on his famous trip around the world—a Cossack servant and a Jakut interpreter, and in four days arrived at Fort Ostrownoi, where an annual fair is held for trading with the Tchuktchis. This fort comprises a few huts surrounded by a palisade, and is built on an island in the lesser Aniuj River, in latitude 68° and longitude 196° 10'.

On the 21st a caravan of Russian merchants arrived with 125 pack-horses loaded with commodities suitable for the Tchuktchi trade. These were tobacco, beads of various colors and hardware, the last consisting mostly of hatchets, knives, and kettles, with other culinary utensils, besides some smuggled brandy, very significantly called by the Tchuktchis, "wild-making-water"—a much more appropriate name than the French "water-of-life," given it in the earliest period of European acquaintance with its delusive stimulating powers. But though unfortunately made acquainted with its frenzying properties, the misguided aborigines will not hesitate to exchange their precious furs to the value of two hundred dollars for a few bottles of bad brandy costing perhaps two dollars at Iakoutsk.

Besides this race, the fair is visited by the other native tribes within a radius of six hundred miles—the Jukahiri, Tungusi, Tchuwanzi and the Koraki—together with a few scattered Russians, for whose benefit the merchants bring a small stock of tea, sugar, cloth and brandy. To trade in this last with the aborigines is duly forbidden by the Russian gov-

ernment, but means are easily found to evade the law, and the poor savages are only the more heavily fleeced because of the contraband character thus given to the traffic.

The commodities brought to this market by the Tchuktchis consisted chiefly of the furs of various animals indigenous to their country and the opposite shores of North America, besides the skins of bears, reindeer, seals and walruses, as well as walrus teeth. Most of these they barter for with the American tribes, giving them in exchange the tobacco and trinkets which they procure from the Russians. The chief articles of their own manufacture are sledge-runners made of whalebone, clothing made from reindeer skins, and seal skin bags. Before the opening of the fair, a basis of barter is settled by the principal personages on both sides. The value of goods exchanged annually was estimated at this time at about \$150,000. The Russians make a profit of about 60 per cent. on what the goods cost them at the home market, and the Tchuktchis about 300 per cent. on what they give for the furs to the American aborigines. But the latter are several months on the road, while the Russians are only a few weeks from home. The fair lasts only three days. The Russians are vehement and noisy; the Tchuktchis calmly wait for what they consider an equitable offer, which they at once accept. The noise, press and bustling activity on the part of the too eager Russians, together with the jargon of mixed Russian, Tchuktchi and Jakut words, in which they proclaim the value of their wares, creates an indescribable confusion and uproar, in marked contrast with the silent composure always maintained by the barbarians.

Here Matinschkin took occasion to introduce his mission to the notice of the chiefs of the Tchuktchi. These were Makamok and Leutt, from the Bay of St. Lawrence, Waletka, whose numerous herds of reindeer crop the green moss of the plains to the east of Cape Schelagskoi, and Ewraschka, whose tribe of nomads roams the lowlands round the Tchaun Bay. He explained to them that the mighty Czar of all the Russias wished to ascertain if his ships could reach his Tchuktchi friends by the northern sea, and bring them the wares they

needed by that route in greater abundance, and at a cheaper rate. He inquired whether in prosecution of that design the servants of the Emperor could rely on a friendly reception among their people, and procure for them such supplies as they might need, by paying for the same in such commodities as the Tchuktchi were wont to purchase.

To all these overtures, accompanied by presents kindly sent them by the Emperor, the chiefs gave their willing assent, promising that the expedition would receive their cordial support whenever and wherever it might be required.

Leutt received him with great cordiality at his tent, where he partook of his hospitality which, however, he would have been glad to dispense with, and where he was almost suffocated by the fumes of stinking oil and the evaporation from six dirty, and almost naked people. His ill-concealed squirmishness excited the hilarity of the wife and daughter of his host, who were busily engaged decorating their persons with many colored beads in honor of his visit. Makomol invited him to witness a sledge-race in which the three prizes were, a blue fox skin, a beaver skin, and a pair of walrus teeth. The speed of the reindeer, and the dexterity of the drivers elicited his admiration, and the applause of the multitude was as sincere as it was well-deserved. This was supplemented by a foot-race, in which the contestants wore their usual heavy fur clothing, but seemed, nevertheless, to run over the course of nearly nine miles, with as much fleetness as the light-clad runners of more genial climes. Matinschkin noticed that the Tchuktchi evinced a much higher appreciation of the previous performance, which is in harmony with what may also be observed among civilized men. At the close of the games, spectators and performers were entertained with princely hospitality at a banquet of boiled reindeer, cut up in small pieces, and served in large wooden bowls distributed around over the snow. The quietness and good order manifested by the people who partook of this wide-spread repast, elicited the admiration of Matinschkin, who could not fail to contrast it with the jostling and crushing and subdued quarreling which so often characterize public banquets in civilized communities.

His visits were formally returned by a party of the Tchuktchi,

on the following day, to the ladies of which he presented red, white and blue beads, and for refreshments, some tea and candy; of the latter only did they partake, tea having no charms for the fashionable ladies of Northeastern Asia. Then they danced, if dance it may be called, where the feet and bodies are moved back and forth, without change of place or evolution of any kind, while the performers beat the air with their hands. In the next stage of the performance, three of the most competent dancers signalized themselves in a very energetic and complicated series of evolutions—dignified with the title of the national dance of the Tchuktchi, in which jumpings, grimaces and contortions formed the chief attraction—until forced by exhaustion to desist. Thereupon it was whispered in the ear of Matinschkin, by the interpreter, that the etiquette of the occasion required him to give to each of the three distinguished artists, a cup of brandy and some tobacco, which was accordingly done, when the whole party took leave of the Russian, charging him to remember to return the call in their own country. The chiefs also made him a formal visit, to renew their assurances of friendliness, and disposition to forward the exploration of the Icy Sea. Leaving on the 28th, he rejoined his chief, as has been said, at Lower Kolymsk, on the 31st of March, 1821. Dr. Kyber, the remaining officer of the expedition, had arrived from Irkoutsk the day after Wrangell's departure on his first sledge journey; but was so feeble that he was not able to take part, even in the second, for which they now began to make preparations.



CHAPTER XXVII.

**WRANGELL'S SECOND SLEDGE JOURNEY—ENCOUNTER WITH A BEAR—
A SALT MOOR—SURPLUS PROVISIONS DEPOSITED—ATTACKED BY
BEARS—RETURN TO LOWER KOLYMSK — SUMMER OCCUPATIONS
—ALMOST AN ACCIDENT—WINTER AT NISHNI KOLYMSK.**

The outfit for this journey was substantially the same as for the previous one, with some few improvements and additions. The most important of these was a portable boat made of skins for crossing open channels in the ice, a crowbar for breaking through the ice when necessary or desirable, and whalebone shoeing for the sledge-runners to be attached where the loose snow or the crystals left by salt water overflow, made the passage difficult. To the instruments were added a dipping-needle and sounding-line. The traveling sledges were six, and the provision sledges fourteen, besides two sledges belonging to the merchant Bereshnoi, who had asked to be permitted to accompany the expedition, making in all a train of twenty-two sledges, with 240 dogs. The load of each sledge at the outset was nearly 1,100 lbs. avoirdupois. Wrangell's immediate companions were Matinschkin, Reschetnikow—a retired sergeant who had joined him at Iakoutsk, and who some twelve years before had accompanied Hedenstrom in his exploring expedition to the New Siberia Islands—and the sailor Nechoroschkow, who had accompanied him from St. Petersburg.

On the 7th of April the start was made, as before, from Sucharnoi Island, and the first halt was at Billings' hut near the lesser Baranow Rock, whence a more northerly direction was taken than on the first journey. A mile and a half from the shore, on the second day, they encountered much difficulty in threading their way among the ice-hummocks, but getting clear after three hours' labor, they found themselves five miles from shore on a level plain unbroken as far as the eye could reach, save

where an occasional small hummock stood like a rock above the surface. Having made seven miles farther, the traveling sledges stopped to await the coming-up. Here they encountered an enormous bear which they succeeded in killing, mainly through the dexterity and courage of one of the Cossack drivers.

When the provision sledges arrived, they reported two of their number missing, having had their sledges upset among the hummocks. Three sledges were quickly unloaded and sent back to their relief, and in two hours the rescuers and the rescued rejoined the others uninjured, but tired and cold. It was therefore deemed advisable to camp for the night where they were. Wrangell's tent was accordingly pitched in the center with four smaller tents belonging to the merchant and the wealthier drivers, round about, the whole being encircled by the twenty-two sledges, with the dogs tethered on the inside. On the 9th, one provision sledge returned homeward; and at noon they found themselves in latitude $69^{\circ} 58'$, with the greater Baranow Rock to the southeast. By night they had made twenty-eight miles, reaching latitude $70^{\circ} 12' 30'$. On the 10th, after a journey of twenty-seven miles, they camped in a small bay on an island which they judged to be the most eastern of the Bear Islands, though they found the latitude only $70^{\circ} 37'$, while Leontjew, in 1769, had determined it to be $71^{\circ} 58'$, and the longitude $162^{\circ} 25'$. Wrangell named it the Four-Pillar Island from the remarkable pillars of granitic porphyry, the tallest of which measured forty-eight feet in height and ninety-one in circumference. The form was somewhat like a gigantic human body with a turban on its head, but without arms or legs. Finding here an abundance of drift-wood, they concluded to remain one day, which was devoted to making observations and collecting a store of firewood.

Two provision sledges returned from this point, when on the 12th of April our travelers set out toward the northeast, and at noon found themselves 5' north and 4' east of the island, having made between six and seven miles. All this time the temperature kept a few degrees above zero, usually between seven and fourteen. Now they encountered the salt covering on the ice surface, which made progress slow, and a thick

fog, which made their clothing wet and uncomfortable. Both circumstances also indicated an approach to open water; and to add to their danger, the wind blew a gale, threatening the disruption of the ice. They found refuge in the shelter of a hummock thirty feet high, and from the fresh falling snow on its summit they were able to obtain water fit for drinking and cooking. The tent was torn, and would have been swept away by the wind had they not secured it by extra fastening to the hummock. By four in the morning the storm had subsided, and the temperature rose to 23° . By attaching the whalebone shoeing to the runners and walking beside the sledges, they continued to advance, but the surface was so rough that it took seven hours to make nineteen miles, while the provision sledges were away behind, out of sight. In the evening the temperature again sank to 7° , but rose on the morning of April 14 to 18° , when they again took the road. Eight miles further on they saw three seals, which, however, got safely away to their holes in the ice. Having traveled twenty miles, they camped at $71^{\circ} 31'$ by $163^{\circ} 21'$, and sent back three more sledges.

They now adopted the plan of traveling by night, and started after sunset on April 15, but after traveling nine miles they found themselves in what Wrangell calls a deep salt moor, with the ice only five inches thick, and so rotten that it could be cut through with a common knife. Hastening out of this dangerous place two miles to the southeast, they found the ice smooth and sound and fourteen inches thick, and the sea depth twelve fathoms. They camped at $71^{\circ} 37'$ by $163^{\circ} 29'$, and spent the night in great alarm, as a high northern wind so agitated the open sea somewhere to the north, that the ice beneath their feet was made to vibrate by the disturbance of the water. Leaving this camp, Wrangell with two sledges only proceeded four miles farther, when he found the ice so broken by fissures, and so unstable, that he concluded to seek safety in quitting the neighborhood. The highest point reached was $71^{\circ} 43'$, at an air line distance of 124 miles from the lesser Baranow Rock.

Having made about thirteen miles to the south-southeast from the limit, they encamped for the night of the 16th of April in a circular hol-

low formed by ice hills. At noon the next day they were at $70^{\circ} 30'$ by $163^{\circ} 39'$; and resuming their journey after sunset toward the east, they soon fell in with a labyrinth of hummocks, with what they conceived to be an island in the distance. Breaking through the intervening obstacles by the free use of the crowbar for three hours, they reached the foot of the towering mass, which proved to be only an ice hill of unusual dimensions. Here were carefully deposited the surplus provisions, thus relieving eight sledges, which, with their drivers, in charge of Sergt. Reschetnikow, were sent on to Nishni Kolymsk. There remained ten persons including the merchant Bereshnoi, who wished to see the adventure through to the end, with six sledges and provisions for men and dogs for fourteen days. On the 18th at noon the point reached was $71^{\circ} 15'$ by $164^{\circ} 4'$, and at night they encamped about 600 yards from a recent ice fissure, in the shelter of a large block of ice, still moving in a south-easterly direction along the margin of the fissure, with the clefts becoming more and more numerous.

Having made thirty miles they halted, at sunrise, on the 20th, at $70^{\circ} 56'$, by $164^{\circ} 49'$. In the evening they ferried themselves across a wide fissure on a floating block of ice, and at a distance of eighteen miles from the halting place of the morning, they sighted the greater Baranow Rock, about sixty miles away to the southeast. Here, while on a short excursion from the main party, in pursuit of a bear, Wrangell and Matinschkin, in two unloaded sledges, got among the breaking ice, and with the utmost difficulty and haste succeeded in rejoining their companions on the stronger ice, at $70^{\circ} 46'$, by $165^{\circ} 6'$. After resting for the night they resumed their course to the southeast on the 21st, but finding the hummocks impassable to their broken sledges, they returned to the same place, and rested on the next day, which was Easter Sunday, and which they observed as nearly in accordance with the customs of their country as they found practicable. They made a block of ice do service as an altar, before which they burnt the only wax taper they possessed, while Bereshnoi read the prescribed service, and the Cossacks and sledge-drivers sang the customary hymns. On the 23d one of the drivers was suddenly taken sick, causing a detention of another day, which was

ATTACKED BY BEARS.



devoted to repairing sledges, with the temperature at 18° above, and the stillness relieved from time to time by the thunder of crashing ice in the distance. It was now determined to go back, and having made thirty-seven miles due west, they encamped at $70^{\circ} 39'$, by $163^{\circ} 29'$, with Four Pillar Islands twenty-two miles to the southwest. Then turning north they fell in with the tracks of the sledges dismissed homeward, and having made twenty-eight miles, they halted in latitude $71^{\circ} 4'$.

On the 26th, after eleven hours of dangerous traveling — Wrangell's eight dogs were once precipitated in the water, and he was saved from following them only by the length of the sledge—they reached their depot of provisions, which they found intact, though numerous traces of bears and other animals were found on all sides of the ice hill. The next day they rested, and found the latitude to be $71^{\circ} 28'$. During the night they were awakened by the barking of the dogs, and on getting up saw two bears, which they pursued without success until morning, leaving Wrangell a solitary guard over the camp. A third bear soon put in an appearance, and, after a moment of painful suspense to the beholder, scampered off, soon falling in with two of the hunters, by whom he was wounded, but without being prevented from making his escape. This fruitless night's hunt necessitated another day's rest; and on the 29th they crossed their own tracks of April 1st. They noticed three halos around the sun, and made over twenty-three miles before encamping, at $71^{\circ} 26'$ by $162^{\circ} 27'$. Finding himself on the scene of Hedenstrom's labors in 1810, Wrangell now concluded to direct his attention to the land they had seen from Four Pillar Islands. "The inhabited country to the north, as alleged by Tchuktchi and others," had failed to heave in sight, and he lost all hope of finding it on the present trip. Having made twenty-four miles in a driving snowstorm, during which they tied the dogs of one sled to the end of the one preceding, so as not to become separated in the thick darkness, and being guided only by the compass, they halted on the open ice plain, but were unable to pitch their tent or light a fire, thus spending the worst night they had experienced on the trip.

On the 1st of May they reached a bay on the north side of Four Pillar Island after a journey of thirty miles in the continued darkness; show-

ing the accuracy of compass-guidance. Two blazing fires which they soon kindled on the land, restored their spirits, and on the morning of the 2d, they were regaled by the notes of some linnets as they approached the second island of the group—the first cheerful sound they had heard since taking to the ice. On the 5th they examined the westernmost of the Bear Islands, and found that the group comprised in all six islands, including the one they had previously named Four Pillar Island. Proceeding south-southwest on the 6th, they reached Cape Krestowoi, having traveled only twenty-five miles, and enjoyed the luxury of resting under a roof, and within walls. Provisions running low, and the season being well advanced, it was now determined to make the best of their way to Nishni Kolymsk, which was reached on the 10th of May, after an absence of thirty-four days, and a journey of 700 miles with the same dogs, and without serious accident of any kind to men, dogs, or provisions.

SUMMER OCCUPATIONS OF WRANGELL'S PARTY.

The scarcity of provisions at Nishni Kolymsk rendered it necessary for Wrangell to make special efforts to secure supplies for the expedition. Fishing parties were dispatched under Sotnik Tatarinow, Wrangell's Cossack sledge-driver, in whose intelligence and experience he had learned to place great confidence. A party was placed in charge of Matinschkin to survey the coast from the Kolyma to the Indigirka. A small dwelling and depot of provisions was to be erected by another party under Sergeant Reschetnikow, at the mouth of the Great Baranicha River. Dr. Kyber, who had now recovered, was at his own request to explore the banks of the Greater and Lesser Aniuj. A fourth section under Wrangell's immediate oversight, was to survey the mouths of the Kolyma. The mate Kosmin, Wrangell's companion on the first sledge journey, had been occupied during the second, in making a large boat or shallop, which was successfully launched on the 23d of June, and rigged with sails and anchor from those which had been used by Captain Billings a generation before. A small boat had also been constructed, capable of holding three persons.

The whole party now embarked in the shallop, but were prevented by contrary winds from making much headway. With four oars they laboriously made their way three miles down the river, when, in making a landing, one of the dogs fell overboard, and becoming entangled in a rope, would have been strangled had not Matinschkin sprung to the rescue. Unfortunately in cutting the rope he cut his own thumb so severely that Dr. Kyber thought it might easily become dangerous; and Wrangell insisted that patient and physician should return to Nishni Kolymsk, also instructing them to explore the Aniuj together as soon as the wound became healed. On the 10th of July Wrangell and Kosmin, with their companions, arrived at the Tschukotschie River, whither the fishing parties had been sent forward, and where they were glad to see that success had crowned their efforts. Here they landed, proposing to make the coast journey to the Indigirka on horseback, and while waiting for the arrival of the Jakut owners and the horses, they succeeded in killing three reindeer. With only five animals—all that could be procured—two to serve as pack-horses and three for himself and two companions, Kosmin undertook to traverse the desert waste between the two great rivers, and started off on the 14th of July. His companions were a Jakut and a Cossack, and they took with them two light canoes for crossing streams.

Wrangell occupied himself with determining some positions on the river, the north being still blocked with ice. On the 27th of July, while absent in the middle of the river with the two companions who alone remained with him, the tent on shore took fire and was destroyed before they could reach it. Wrangell had, however, the good fortune to save his papers and instruments; but the survey of the Kolyma was abandoned, and he returned to Nishni Kolymsk. He found Matinschkin and Kyber ready to start for the Aniuj, as previously agreed, and under the advice of the latter he retired to the more genial climate of Sredne Kolymsk, in the hope of being relieved from the rheumatism, which for some time had been growing more troublesome, and now threatened to unfit him for prosecuting his future sledge journeys.

After spending nearly seven weeks among the hospitable Jakuts, near

Sredne Kolymsk, Wrangell, much invigorated by the repose and kindly treatment he had enjoyed, proceeded down the river in his shallop, arriving at Nishni Kolymsk on the 12th of September. Here he found Reschtnikow returned from his mission to the Baranicha River, where he had completed the required buildings. Soon Nechoroshkow joined them from the fishing grounds, and reported exceptional success in that undertaking. On the 11th of October Matinschkin and Kyber, and a week later Kosmin, arrived in safety from their respective expeditions, and the whole party was thus re-united for the winter at Nishni Kolymsk.



CHAPTER XXVIII.

WRANGELL'S THIRD SLEDGE JOURNEY—EASTER SUNDAY—VIEWS THE OPEN SEA — EXPLORE THE TUNDRAS — MEET KOSMIN — IMPORTUNITY OF BERESHNOI—GENEROSITY OF A JAKUT—RETURN TO KOLYMSK.

In preparing for the third journey, Wrangell and his party encountered a very serious difficulty. An epidemic broke out among the dogs, in which four-fifths of the whole stock perished. By great exertion they were able to procure forty-five dogs instead of the ninety-six Wrangell had designed to use on his third trip to the north. The Cossacks, who were the fortunate owners of most of the dogs that had survived the epidemic, now volunteered, in conjunction with some of the other inhabitants, to fit out twenty sledges, each with twelve dogs, for the use of the expedition. Wrangell now selected five traveling sledges, and nineteen to carry provisions, which last were to be sent back as soon as possible, as out of the whole number of dogs, amounting to nearly three hundred, only enough for the traveling sledges could be found which were fit to make the whole journey. His immediate companions for the trip were Matinschkin, Kosmin and Nechorowsky, Kyber being again prevented, very much against his wishes, by the weak state of his health, from accompanying them. Wrangell proposed to make this journey a continuation of his former one by proceeding as directly as possible to the limit previously attained, and prosecuting his labors from that point.

With forty days' provisions for the men, and thirty-five for the dogs, they set out once more from Sucharnoi Island on the 26th of March, 1822, reaching the greater Baranow Rock on the next day. On the 28th, after clearing the rock, they directed their course toward the northeast for the intersection of $71^{\circ} 30'$ with the meridian of Cape Schelagskoi, at a distance from the same of about ninety miles. At a point about

eighteen miles east of the limit of the previous journey, they made the intended deposit of provisions on the 6th of April, and next day dismissed the last thirteen of the provision sledges, six having been already sent back, and one intermediate deposit of provisions having been established on the 1st, at $70^{\circ} 19'$ by $14'$ east of the greater Baranow Rock. Matinschkin was sent to the northeast on the 6th, with five days' provisions and two sledges, and Wrangell and Kosmin set out on the 7th, with the three remaining sledges and three days' provisions, toward the north, both parties to return on the 10th to the depot. No land had been discovered by either party. On the 12th they resumed their exploration together toward the north, having found by the previous short trips that the way was more open in that direction. The 14th was Easter Sunday, which they devoted to rest, the mild weather and bright sunshine adding to their enjoyment of the occasion. It was the 18th of April before they arrived at the limit reached by Wrangell and Kosmin on the 9th, newly-formed hummocks, as well as the enlargement of the old ones, being the chief cause of this great disparity in the rate of progress. A sick sledge-driver was sent back with two companions and a double team of twenty-four dogs, releasing one sledge, which was used for repairing the others. A small deposit of provisions was also made.

There were now but five men, with three sledges and two small tents, the largest tent having been turned over by Wrangell to the use of the invalid. On the 21st of April, having reached $71^{\circ} 52'$ by $3^{\circ} 23'$ east of the great Baranow Rock, and the increasing number of new hummocks rendering further progress extremely difficult, it was determined to return. They had about reached the limit of the shore ice of Siberia, as they judged, but before turning their backs to the threatening north, Matinschkin in a lightly-equipped sledge proceeded six miles farther to the north, where all further advance was stopped by the complete breaking up of the ice, and the near approach to the open water of the Polar Sea. He here " beheld the icy sea breaking its fetters; enormous fields of ice, raised by the waves into an almost vertical position, driven against each other with a tremendous crash, pressed downward by the force of the foaming billows, and reappearing again on the sur-

face, covered with the torn-up green mud which everywhere here forms the bottom, and which we had so often seen on the highest hummocks. On his return Mr. Matinschkin found a great part of the track he had passed over already gone, and large spaces which he had just traversed now covered with water." He had been gone six hours. Now striking to the west-northwest, they reached $72^{\circ} 2'$ on the 24th, at a distance of 151 miles in a straight line from the nearest land, the great Baranow Rock, and about $2^{\circ} 50'$ east of its meridian. Progress in this direction was stopped by the same obstacles as before, and it was now determined to make for the central depot of provisions.

On the 4th of May at the distance of forty-six miles from Cape Schelagskoi, with a clear sky and an open horizon to the north and east, extending twenty-nine miles, and no land in sight, they concluded that the "inhabited north country" was probably not to be found in the meridian of that cape, nor of the Baranow Rocks. Five days later they reached their provision depot, which they found uninjured, and resting one day for the refreshment of men and dogs, they started for Nishni Kolymsk. On the 16th of May, at Pochotsk, they met Lieutenant Anjou and party on their return to the Yana River from the islands of New Siberia; and on the 17th arrived without serious disaster of any kind, at Nishni Kolymsk, after an absence of fifty-three days, and a journey of 782 miles.

EXPLORATIONS IN THE TUNDRAS.

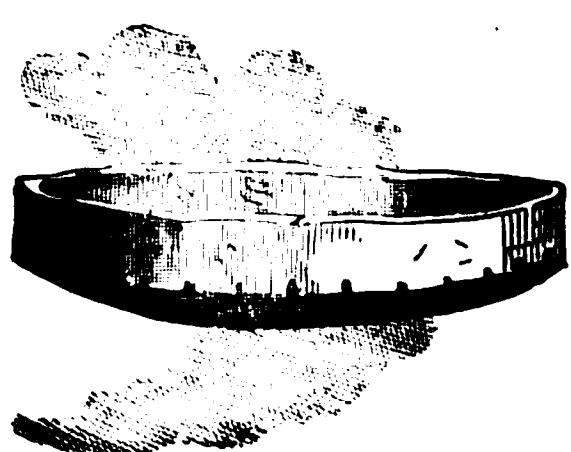
The only important expeditions of the summer of 1822 were Matinschkin's journey across the Eastern Tundra, and Wrangell's own trip through the Hilly Tundra. They parted company on the 12th of July, at Pantelejewka, a few miles north of Nishni Kolymsk, the proposed scene of Wrangell's exploration lying almost due north of that point, and Matinschkin's away east toward Tchaun Bay and Cape Schelagskoi. The latter was accompanied by the merchant Bereshnoi, who was bound on a trading journey to the Tchuktchis of Tchaun Bay, taking Ostrownoi on the way with the hope of securing an interpreter. Arriving there on the 22d, they hired Mardowskij, a Tchuwanzian chief who under-

stood the Tchuktchi language, to accompany them. A week later they arrived at the Fedoticha River, on the confines of the wide-spreading tundras. By this name are designated the mossy flats or vast plains which border on the Arctic Ocean, chiefly in Siberia, but also along the north coast of Europe. The word originated with the Finns, who call these wastes tunturs. They are of the same general character everywhere, being great tracts of swamp-lands, partly covered over with a thick layer of bog-moss, and partly with a dry snow-white covering of reindeer-moss and different kinds of lichens and similar Arctic vegetation. There are no trees, or even shrubs, and it is only the reindeer that renders these frightful wastes habitable for the hordes of aboriginal nomads. A great portion of them can only be traversed in winter when frozen over; and to these belong the tundras of Northern Siberia which retain a covering of snow throughout the year.

On the 2d of August Matinschkin rejoined Wrangell, who had meantime reached the buildings previously erected on the Great Baranicha; and on the 12th crossed the three arms of that river in Kosmin's boat. On the 14th they met Kosmin himself, in the shallop, who had come to fish in those waters, accompanied by four companions. With his aid a light boat was constructed for Matinschkin, who pushed forward on the 15th with Bereshnoi, the interpreter, three Jakuts, and sixteen horses. On the 26th of August when they had about determined to abandon the hitherto fruitless search for the Tchuktchi and turn back, they reached the Taunmeo River, and the ensuing day, on the other side, found abundant as well as recent traces of that people, who, however, had all disappeared some short time before their arrival.

Bereshnoi was now importunate to turn homeward, and proceeding up the river until the first of September, they then turned their faces to the west for Nishni Kolymsk, striking the route of the Tchuktchi to the annual fair, at Ostrownoi. On the 3d they were without food of any kind except a single wild duck which one of the Jakuts had killed, unknown to the rest of the party. This he furtively offered to Matinschkin, saying: "There, take and eat it alone; it is too little to do good to all of us, and you are very tired." The generous offer was, of course,

fused, and the Jakut's duck was put into the kettle, the broth making a refreshing, though light repast for all. On the 5th, after three days' fasting and great labor in crossing snow-covered hills and ravines, they lay down at night on the bank of a stream, in which they exerted themselves to place a net. Matinschkin had suggested the killing of one of the horses, but this was overruled, as the Jakuts declared that in the heated state of their blood the use of their flesh would cause serious illness. Hoping, and yet fearing the downfall of their hopes, they hesitated to draw the net next morning, and were delighted to find three large and several small fishes. They reached the Aniuj the same day, and found more fish than they could consume. The surplus they were thoughtful enough to place as a deposit for some future travelers; and were rejoiced to learn, some months later, that the 5000 fishes they had thus taken the trouble to store, were found by some distressed wanderers, and supplied them with food for a month. And as if in direct return for their thoughtfulness, they themselves found a similar deposit of clothing, which they much needed in the daily increasing cold. On the 12th they resumed their journey, and four days later arrived at a small settlement, where they rested. Matinschkin now concluded to devote the remainder of the season to a survey of the country from the Aniuj to Nishni Kolymsk, a distance of nearly 300 miles, and took his departure on the 18th. He reached Molotkowo on the 25th, in the boat of his friend Karkin, by whom himself and Dr. Kyber had been hospitably entertained the year before. Finally, on the 6th of October, he reached Nishni Kolymsk, after an absence of eighty-six days since leaving Pantelejewka.



CHAPTER XXIX.

WRANGELL'S FOURTH SLEDGE JOURNEY—START FOR GREATER BARANICHA — RUMORS OF A NORTHERN CONTINENT — AFLOAT — WRANGELL SEES THE ARCTIC—DANGER—MEET WITH MATINSCHKIN—A NATIVE SPECULATOR — SERFDOM — CLOSE OF WRANGELL'S EFFORTS.

To secure a good selection of dogs for his fourth journey on the ice of the Polar Sea, Wrangell solicited the co-operation of the inhabitants on the Indigirka, Chroma and Yana Rivers, and spent a few days of November at Uestyansk, at the head of the delta of the last named river, with Lieut. Anjou, whose headquarters were at that point. Having obtained the promise of fifteen good teams, or 180 dogs, he returned to Nishni Kolymsk early in January, 1823. On the 11th of February Kosmin started on a special expedition, with two sledges, for the Bear Islands, to ascertain definitely whether these were other than those they had before seen. He returned on the 1st of March, having made a complete re-examination of the whole region, and satisfied himself that no other islands existed in those waters.

All preparations being made, Wrangell divided his party into two sections, one under Matinschkin, accompanied by Dr. Kyber, to explore the coast from Cape Schelagskoi to Cape North, known to the Tchuk-tchis as Capes Erri and Ir-Kaipig, the other under his own immediate charge, to search for the “inhabited country” in the Icy Sea to the north.

On the 10th of March they set out with twenty-one sledges toward the buildings previously erected on the Greater Baranicha. Three days later Wrangell was overtaken by a Cossack messenger bearing dispatches from the governor-general of Siberia, and sent back two sledges. They reached the buildings the same night, and found the extra

shelter very desirable, the thermometer having sunk to 42° below zero. Three days were consumed in final preparation, repacking the nineteen remaining sledges with what they had brought along, and what had been previously stored in the buildings. The fourth day was so stormy that they could not set out, and it was therefore the 17th of March before they were fairly under way on the fourth and last sledge journey over the ice of the Polar Sea. In three days they reached Cape Schelagskoi, where they met a *kaimakai*, or chief of the Tchuktchi. A subordinate governor in Turkey is known as *kaimakam*, which suggests a possible relationship between this remote aboriginal tribe; or possibly the word in that form may have been borrowed from some of the Tartar hordes of Siberia.

Our travelers found the Tchuktchi chief friendly and serviceable, as soon as he became satisfied that their intentions were entirely pacific. From him they learned that the region of the cape was only temporarily inhabited by his people for bear hunting purposes, and that it had been previously occupied by the Schelagi and Tchewani tribes, whose names survive in Cape Schelagskoi and Tchaun Bay, but who had themselves migrated westward many years before. When questioned about the "inhabited country to the north," he said: "There is a part of the coast between the capes, where from some cliffs near the mouth of a river one might, on a clear summer day, descry snow-covered mountains at a great distance to the north, but that it was impossible to see so far in winter." These distant mountains, in his opinion, belonged to an extensive country, not to islands; and he had heard from his father that a *kaimakai* of their race had migrated thither with his horde years before in boats, but what had become of them was never learned in the country they had left. He had himself seen herds of reindeer coming from that land on the ice, and landing on the Siberian continent. He also attributed to the inhabitants of that land the wounding of a whale which was found stranded on an island off the coast, with slate-pointed spears still adhering to its body. But Wrangell thought it more likely that it had been attacked by the inhabitants of the Aleutian Islands, who are known to use just such spears.

The latitude of the isthmus back of Cape Schelagskoi where they had encamped was found to be $70^{\circ} 3'$, and the longitude $171^{\circ} 3'$. Proceeding eastward on the 22d, they arrived at Cape Kosmin, in $70^{\circ} 1'$ by



SEA BEARS OF SIBERIA.

$171^{\circ} 55'$, and found the coast line to the east uneven and hilly to the mouth of the Werkon, the western headland of which Wrangell named Cape Kyber, in honor of the physician of the expedition. It is 280 feet high and eleven and a half geographical miles distant from the low east-

ern bank of the river. To the small island two miles to the north he gave the name of Schalarow Island, in honor of the merchant navigator of that name, who perished in this vicinity in 1765. About three miles from the shore and in the longitude of the east bank of the Werkon, they constructed a depot of provisions, on the 25th, and sent back the empty sledges to Nishni Kolymsk.

The next day they fell in with hummocks at the distance of ten miles from the depot, where the crowbars were brought into requisition; and the 27th was consumed in making three miles. Another deposit was now made to lighten the sledges, and eight of these were sent homeward. A twenty-three days' supply for men and dogs was here buried, and only four sledges and five men remained in Wrangell's section. This was at $70^{\circ} 12'$ by 174° . On the 29th the ice on which they were became detached from the main body in a storm, but on its subsidence became again united. On the 31st they made only six miles, and were only ten miles from the coast. Finding the way due north or northeast blocked by impassable hummocks, they struck out toward the west-northwest, on the 1st of April, and having gone about five miles they came to a place where the covering was thin, new ice, too frail to venture on, and encamped on its margin. But the next day, seeing no alternative, they risked the new ice, and had the good fortune to get across in safety, owing largely to the alertness of the dogs and the lightness of the sledges, which bore at this time only a few days' provisions.

Notwithstanding these advantages the trial was extremely dangerous, as shown by the fact that the heaviest of the sledges broke through the thin crust several times, but only to be whisked out the more rapidly by the dogs, whose energies were evidently stimulated by a keen sense of danger. This was at $70^{\circ} 20'$ by $174^{\circ} 13'$, as ascertained after crossing. On the night of the 3d, after having made twenty miles, they camped among hummocks and surrounded by fissures, where they got detached, but succeeded in reaching the main body in the morning by a pontoon bridge of ice blocks. Two sledges were here ordered back to the depot, and their provisions transferred to the remaining two, with

which Wrangell determined if possible to move on to the north. On the 4th, at $70^{\circ} 51'$ by $175^{\circ} 27'$, and distant in a straight line from land about sixty miles, they encountered the open water, not less than 300 yards wide, and extending east and west as far as the eye could reach.

"We climbed one of the loftiest ice hills," says Wrangell, "affording an extensive view toward the north, and from thence we beheld the wide, immeasurable ocean spread out before our gaze. It was a fearful and magnificent spectacle, though to us a melancholy one. Fragments of ice of enormous size were floating on the surface of the agitated ocean, and were dashed by the waves with awful violence against the edge of the field on the farthest side of the channel before us. These collisions were so tremendous that large masses were every instant broken away, and it was evident that the portion of ice which still divided the channel from the open sea would soon be completely destroyed. Had we made the attempt to ferry ourselves across upon one of the detached pieces of ice, there would have been no firm footing on reaching the opposite side. Even on our own side fresh lanes of water were constantly forming, and extending themselves in every direction in the field behind us. We could go no farther."

On the night of the 5th they camped at the second depot of provisions, where they found the two returned sledges and the supplies intact. On the 8th they were in imminent danger, having been detached from the main body on a floe of only 150 yards wide. "Every moment," says Wrangell, "huge masses of ice floating around us were dashed against each other and broken into a thousand fragments. Meanwhile, we were tossed to and fro by the waves, and gazed, in helpless inactivity, on the wild conflict of the elements, expecting every moment to be swallowed up. We had been three long hours in this painful position, and still our island held together, when suddenly it was caught by the storm and hurled against a large field of ice. The crash was terrific, and we felt the mass beneath us giving way, and separating in every direction. At that dreadful moment, when destruction seemed inevitable, the impulse of self-preservation implanted in every living being saved us. Instinctively, and with the quickness of thought, we sprang on the sledges, and urged

the dogs to their utmost speed. They flew across the yielding fragments of the field against which it had been stranded, and safely reached a part of it of firmer character, on which were several hummocks, and here the dogs immediately ceased running, apparently conscious that the danger was passed."

Proceeding forward they soon reached the first depot of provisions, and taking with them all they could, they hastened to the shore and camped under a cliff near the mouth of the Werkon. They spent the night in bringing away the remainder of their provisions from the first depot; but some they had left at the second could not be reached. On the 10th they rested, and ascertained the location, which was found to be $69^{\circ} 51'$, by $173^{\circ} 34'$, on the east side of the Werkon. On the 11th they made another effort to reach the second depot of provisions, but encountered too many water lanes, and returned in six hours, Wrangell occupying the interval in examining and naming Cape Kekurnoi, in $69^{\circ} 51'$ by $174^{\circ} 34'$. They started eastward on the 14th in the hope of falling in with Matinschkin, as their provisions were running low, and their northern depot on the ice could not be reached. They had gone over forty miles without meeting him, when it became necessary to make for the central depot at the Greater Baranicha, two hundred miles to the west, with a very poor prospect of being able to reach it, as their provisions were nearly exhausted. They had scarcely proceeded six miles when, to their great joy, they fell in with the object of their search, whom they found, as anticipated, in possession of full supplies. Matinschkin, during his survey of the tundra east of the Werkon, discovered a hut on the coast, which both he and Wrangell concluded was the last resting place of Schalarow, in 1765, who, therefore, succeeded in the great object of his ambition, the doubling of Cape Schelagskoi, but did not live to return to civilization.

Before leaving, they here, $69^{\circ} 48'$ by $176^{\circ} 10'$, established a depot of provisions, and sent back eight sledges, retaining three for Matinschkin's party, and four for Wrangell's. On the 20th the latter reached Cape Yakan, $69^{\circ} 42'$, by $176^{\circ} 32'$, whence, according to certain Tchuktchis, "the northern country" was sometimes visible. But it failed to appear

to his close scrutiny. About three miles farther they reached the Yakan River. Nine miles to the east, at $69^{\circ} 36'$, by $176^{\circ} 58'$, "the warmth of the weather obliged them to halt." Here they observed bones of the whale stuck upright, and were informed by the Tchuktchis that they were the remains of dwellings formerly occupied by a resident tribe, which had disappeared. Traveling forty miles from their halting place, they arrived at $69^{\circ} 28'$, by $177^{\circ} 44'$, where they had the good fortune to fall in with a lot of driftwood, mostly fir and pine.

On the 21st Matinschkin made one more break for the north, taking the ice, with his three sledges, and provisions for fifteen days, while Wrangell, Kosmin, and Kyber proceeded east with the other four sledges, and provisions for thirteen days. The last-named crossed Kuyegan River, twenty-eight miles to the east, and reaching $69^{\circ} 12'$, by $179^{\circ} 13'$, seven and a half miles farther, by five o'clock the next morning, they halted. Having journeyed thirteen and a half miles along the coast, which here trends a little south of east, they reached on the morning of the 23d, the headland which Capt. Cook had sighted in 1778, and named Cape North. Here they met Etel and his tribe of Tchuktchis, who evinced a friendly disposition. Inviting Wrangell to his tent, "There," said he, "look well at all those things, take from them what you like, and give me in return a gun, and powder and shot, as I am very fond of hunting, and am sure I could use a gun better than the mountain Tchuktchis, among whom I once saw one, and shot with it." A barter was effected for thirteen seals and a supply of firewood, which were more valuable than all the household treasures of the chief. With Etel as guide, they set out on the 25th for Kolyutschin—by Cook named Burney—Island, and having made fifty miles, they halted in the night at the huts of two Tchuktchi families known to the chief. Twenty-three miles farther on they crossed the Ekechta River, also three smaller streams, which fall into the same bay, and the Amguyim River. Eight miles beyond, where the tundra again gives way to more elevated land, they ascertained the latitude to be $68^{\circ} 10'$, and longitude $182^{\circ} 6'$. They made nearly fifty miles on the second day, also, reaching a small settlement on the west bank of the Wankarem

River, and near the Cape of that name. "There is a remarkable similarity," says Wrangell, "between the three promontories of Schelagskoi, Ir-Kaipij and Wankarem. They all consist of fine grained syenite, with greenish white feldspar, dark green hornblende and mica, and are united to the mainland by a narrow isthmus. The elevation of the headland and breadth of the isthmus are greatest at Cape Schelagskoi, and least at Cape Wankarem."

On the 27th, doubling Cape Onman, they sighted Kolyutschin, or Burney Island, about twenty miles to the southeast in the entrance to the bay of the same name, looking like a circular mountain. On the southern shore was a Tchuktchi village, where some seventy men soon gathered around the strangers, eager to trade whale's flesh, of which they had an abundance, for tobacco and trinkets. They rested two days on the island, and not having wherewith to continue his barter with the natives, Wrangell now determined to re-traverse the 600 miles that separated him from Nishni Kolymsk. He had reached the point where Captain Billings' survey from the east had left off, a generation before. Ascertaining the location of the southern point of the island to be $67^{\circ} 27'$ by $184^{\circ} 24'$, they set out on the return trip on the evening of the 29th, and three days later arrived at Etel's village, back of Cape North. A peculiarity noticed among the Tchuk-tchis of the coast was the existence of a class of servants, entirely dependent upon the wealthier of the natives, by whom they were fed and clothed in return for their services, and not entitled to hold property of any kind; in fact, slaves. Of this institution no history or explanation was offered, other than that "it had always been so, and must always continue to be so."

On the 6th of May they reached the point whence Matinschkin had started northward, and found a cross erected by him, with a notice attached stating that he had not been able to get farther than ten miles from the coast, owing to the breaking up of the ice. On the 7th they slept at Schalarow's hut, and six days later reached the village to the rear of Cape Schelagskoi, with their provisions for men and dogs exhausted. The natives had had a bad season of hunting and fishing since their de-

parture, and could give them but little assistance. So there was nothing to do except to push on for the Greater Baranicha, with dogs foot-sore and weary, but eager to get ahead as fast as possible. Reaching their supplies on the 15th, they remained two days in camp to rest the over-worked animals, and on the 17th resumed their journey. On the 22d they arrived at Nishni Kolymsk, after an absence of seventy-eight days, and a round trip of 1330 miles. Matinschkin had arrived on the 16th, having taken occasion to survey Tchaun Bay on his return from his fruitless journey to the north. He and Kyber left for St. Petersburg about the middle of July, and Wrangell and Kosmin followed toward the end of August, 1823.

Thus closed this remarkable series of sledge journeys over the ice of the Polar Sea, leaving the parties engaged therein still disposed to believe in the existence of the alleged northern country, the discovery of which was denied to their long continued efforts and heroic endurance. Wrangell suggested that if the attempt should be resumed, Cape Yakan ought to be selected as the base of operations. Too much time, energy and provisions were necessarily wasted before getting fairly under way from Nishni Kolymsk. The ice king of the north had proved unconquerable. Four well-planned campaigns had been fought and lost, the vanquished retiring with only the sense of having bravely done their utmost to obtain an almost impossible victory. Had they started from Cape Yakan there is little reason to doubt that they would have discovered the object of their search, of which the southwestern corner was only about one degree to the east, and a degree and a half to the north of that point, or about 103 miles in a direct line to the northeast.



CHAPTER XXX.

PARRY'S SECOND VOYAGE TO THE NORTHWEST — SHARP NATIVES — CAIRNS DISCOVERED — NUMEROUS DISCOVERIES — EXPLORATION IN BOATS — IN WINTER QUARTERS — THEATRICALS AS A PASTIME — ESQUIMAUX SNOW HUTS — INTELLIGENCE AMONG NATIVES — A NORTHERN GEOGRAPHER — A SORCERER — KILLED BY A FALL.

The second expedition under Commander Parry comprised the Fury of 377 tons, and the Hecla, of the previous expedition, of 375 tons, to be accompanied by the transport Nautilus until they reached the ice. The instructions were to proceed to Hudson's Strait, and thence through Hudson's Bay to Rowe's Welcome, or through Fox Channel to Repulse Bay, on the south coast of Melville Peninsula. From the neighborhood thus indicated it was hoped a channel might be found to the Pacific, and if they should succeed in reaching that ocean by any route, they were to proceed through Behring Strait to Kamchatka, and thence to the Sandwich Islands, or to the Canton River, in China, where they were to refit and re-victual before returning to England. Though Parry's commission was dated Dec. 30, 1820, they did not leave the coast of England until May 1, 1821. The Hecla was under the immediate command of Capt. George Francis Lyon, and the Nautilus was in charge of Lieut. Scymgour. On the 14th of June, in latitude $60^{\circ} 48'$, and longitude $53^{\circ} 13'$, in the entrance to Davis' Strait, they met the first iceberg, and in obedience to instructions took the surplus stores of the transport aboard the Fury and Hecla.

The Nautilus was ready for dismissal on the first of July, when she proceeded on the homeward voyage, and her late consorts made for the ice. Two days later these were stopped by the ice-floe, with over thirty icebergs in sight, and on the 5th were completely beset by the ice, against which they were often driven with some

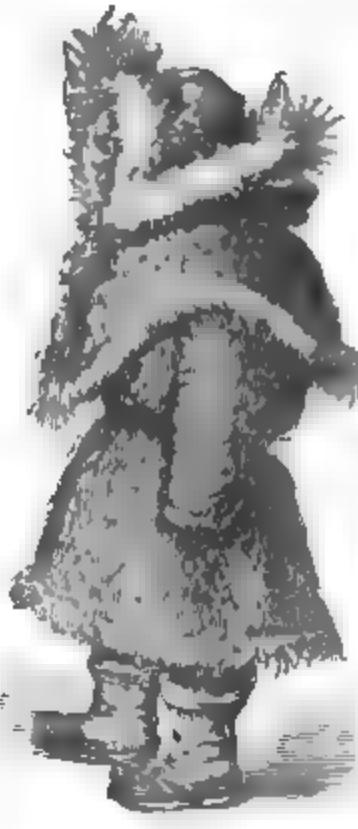
violence, but without serious injury, both being very strongly built, and well adapted for the rough usage they received. Eight days later they sighted two vessels of the Hudson Bay Company, and on the 14th the *Lord Wellington*, with 160 settlers, mostly foreigners, for the Red River of the North. A week later, by constant effort in taking advantage of every opening, and by forcing their way where no such opening offered, they reached $61^{\circ} 50' 13''$ by $67^{\circ} 7' 35''$, in the entrance of Hudson's Strait, and in sight of Saddle-back Island. Here, while anchored to an ice-floe about four or five miles from land, they were visited by over one hundred Esquimaux, male and female, all very eager to traffic, but by no means willing to part with their wares at a sacrifice. Parry found this tribe or horde much less honorable than the small body he had encountered the previous year. They were ready to steal all they could, and even offered to barter their children for goods. "They seem to have acquired," says Parry, "by an annual intercourse with our ships for nearly a hundred years, many of the vices which unhappily attend a first intercourse with the civilized world, without having imbibed any of the virtues or refinements which adorn and render it happy."

On Sunday, the 22d of July, a favorable wind arose, and they proceeded rapidly, under all sail, through the Straits, finding ample openings between the ice-floes. They were not a little surprised at the amount of rocks, shells and weeds which they noticed on these floes. "Masses of rocks," says the observant commander, "not less than a hundred pounds in weight, are sometimes observed in the middle of a floe, measuring half a mile or more each way, and of which the whole surface is more or less covered with smaller stones, sand and shells."

On the first of August they arrived off Southampton Island, and were visited by some natives with whom they changed commodities. "Many of the jackets of these people, and particularly those of the females, were lined with the skins of birds, having the feathers inside." Skirting the north coast of this large island or group, they arrived on the 15th, at a bold headland, which Parry named Cape Bylot, judging it to be the most western point seen by the navigator of that name in Fox Channel, in 1615. Having soon arrived within five or six miles of the

entrance to what Capt. Middleton had named the Frozen Strait in 1742, the commander, accompanied by Mr. Ross, went ashore east of Cape Welsford, where they found the coast about 1000 feet high, but indented with a number of small caves at short intervals between the projecting caves of gneiss. In one of these they improvised a tent and remained over night; but a favorable wind arising they hastened aboard on the morning of the 17th, and making all sail, discovered "one of the most secure and extensive harbors in the whole world," which they named Duke of York's Bay, opening south from Cape Welsford. They here found the remains of an extensive Esquimaux encampment, which they judged to be capable of accommodating over 120 persons. These huts did not present any novel features of construction, but three miles farther inland they fell in with what they judged to be a native burial ground. Here they found nine or ten cairns, about three feet in height, and as many wide at the base. In a cursory examination they found one skull, and a number of small objects, such as arrow heads, spear heads, and miniature canoes—representatives of the implements most used by the deceased during life.

On August 21 they arrived, through the Frozen Strait, at the northern entrance of Rowe's Welcome, in thick weather, and passing its northeastern headland, the Cape Frigid, of Middleton, they found themselves on the 22d, in the land-locked inlet to the northwest, known as Repulse Bay. They ascertained their exact situation to be in latitude $66^{\circ} 30' 58''$, just $58''$, or about one mile north of the Arctic Circle, and in longitude $86^{\circ} 30' 20''$. Having been instructed to "keep along the line of this coast to the northward, always examining every bend or inlet which might appear likely to afford a practicable passage to the westward," over six weeks were spent in carefully following, examining and surveying the coast line for about 600 miles. They discovered Hurd's



DRESS OF NATIVES.

Channel, so called in honor of Thomas Hurd, hydrographer to the British Admiralty, Gore Bay, Lyon Inlet, Hoppner Inlet, and Ross Bay, besides Bushman, Vansittart, and Sturges Bourne Islands, Cape Montague and Brook's Bluff, named in honor of the officers of the expedition. They began their slow northern progress on the 23d of August, and went into winter quarters on the 8th of October. Before that date they had found new ice of the season beginning to form, and Parry thus describes the obstruction it presents to successful navigation:

"The formation of young ice upon the surface of the water is the circumstance which most decidedly begins to put a stop to the navigation of these seas, and warns the seaman that his season of active operations is nearly at an end. It is indeed scarcely possible to conceive the degree of hindrance occasioned by this impediment, trifling as it always appears before it is encountered. When the sheet has acquired a thickness of about half an inch, and is of considerable extent, a ship is liable to be stopped by it unless favored by a strong and free wind; and even when still retaining her way through the water at the rate of a mile an hour, our course is not always under the control of our helmsman, but depends upon some accidental decrease or increase in the thickness of the sheets of ice with which one bow or the other comes in contact. A ship in this helpless state, her sails in vain expanded to a favorable breeze, her ordinary resources failing, and suddenly arrested in her course upon the element through which she has been accustomed to move without restraint, has often reminded me of Gulliver tied down by the feeble hands of Lilliputians. Nor are the struggles she makes to effect her release, and the apparent insignificance of the means by which her efforts are opposed, the least just or least vexatious part of the resemblance."

They were at one time driven across to Southampton Island, finding themselves, on the 2d of September, almost at the spot they had left on the 6th of August, which serves "to show," says Parry, "the value of even the smallest geographical information in seas where not an hour must be thrown away, or unprofitably employed." On the 5th of September they again sailed northward, and leaving the ships in as

AN ARCTIC SCENE

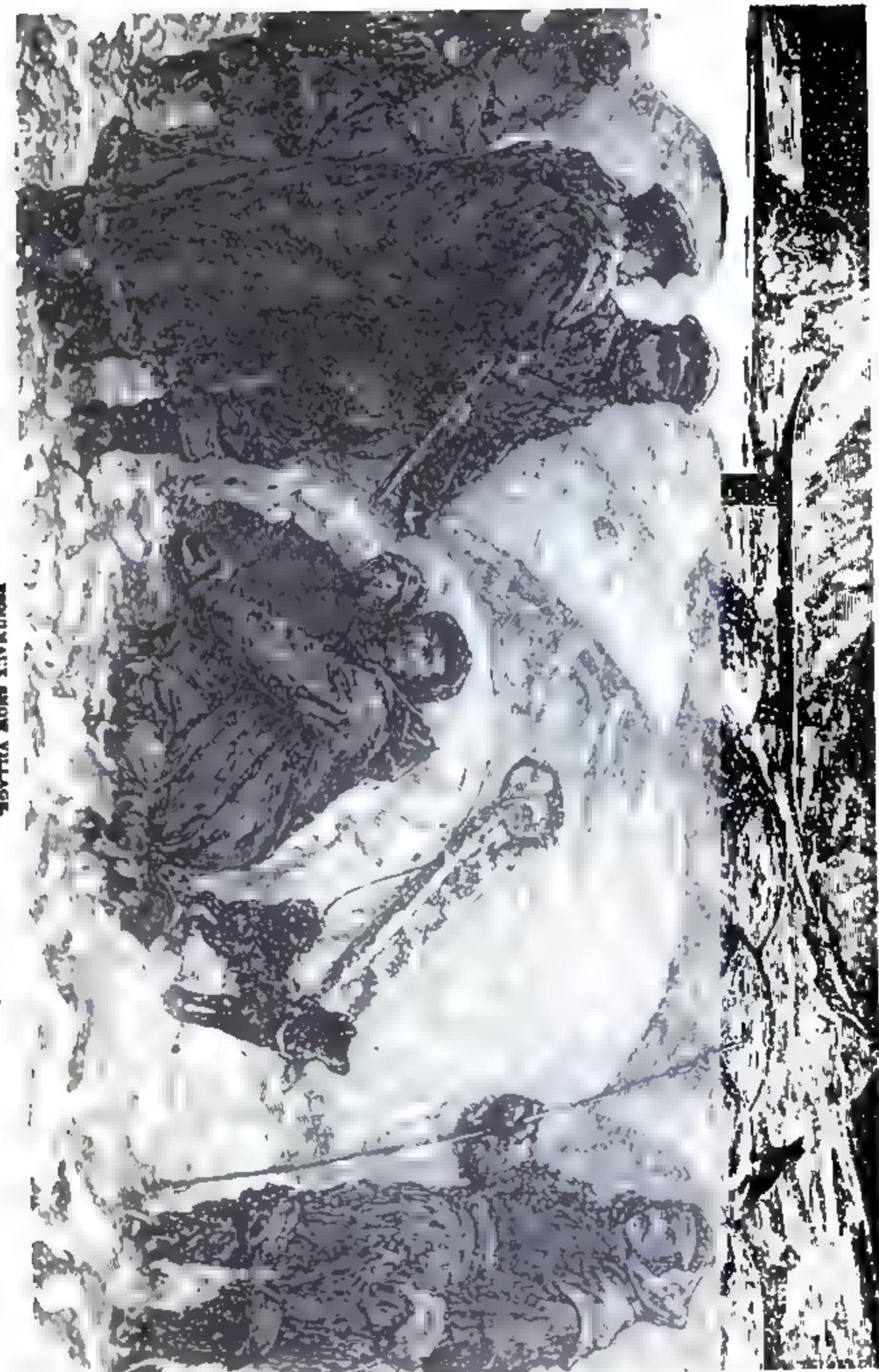


sheltered spots as could be found, they carried on the exploration of the coast in repeated trips by boat, using the ships as a base of supplies, to which they returned when needful. Thus they labored indefatigably until the 8th of October, when the new ice was already three and a half inches thick. "In reviewing the events of this, our first season of navigation," says Parry, "and considering what progress we had made toward the accomplishment of our main object, it was impossible, however trifling that object might appear on the chart, not to experience considerable satisfaction. Small as our actual advance had been toward Behring's Strait, the extent of coast newly discovered and minutely explored in pursuit of our object in the course of the last eight weeks, amounted to more than two hundred leagues, nearly half of which belonged to the Continent of North America. This service, notwithstanding our constant exposure to the risks which intricate shoal and unknown channels, a sea loaded with ice, and a rapid tide concurred in presenting, had providentially been effected without injury to the ships, or suffering to the officers and men; and we had now once more met with tolerable security for the season."

IN WINTER QUARTERS.

The bay selected for winter quarters on what they named Winter Island, at the entrance to Lyon's Inlet, "was," says Parry, "as fine a roadstead as could be desired if situated in a more temperate climate," but was entirely open to the south. The ships were therefore exposed to a double danger from ice-floes driven against them from the south, or against which they might be driven if torn from their moorings by a gale from the north. The chief protection was from the new-made ice between them and the heavier bodies to the south, and in the commander's fertility of resource in any emergency which might arise. Having perfected their arrangements for the security of the ships and stores, as well as for the warmth and comfort of officers and men—substantially the same as on the previous expedition, but with the improvements suggested by that experience—they were ready to be amused. After a few days spent in "rigging the theater," the season of 1821-2 opened auspi-

ciously on the 9th of November, with Sheridan's comedy of "The Rivals," Capt. Lyon taking the place of manager, so acceptably filled by Lieut. Beechey of the former expedition. Musical concerts alternated with theatrical representations, and a school was opened, but the newspaper venture does not seem to have been renewed. Christmas was celebrated with such of the usual observances and festivities as they could command, and the general health was excellent, there being only a single case of sickness, the carpenter's mate. "To increase our ordinary issue of anti-scorbutics, liberal as it already was," says Parry, "we had from the commencement of the winter adopted a regular system of growing mustard and cress, which the superior warmth of the ships now enabled us to do on a larger scale than before. Each mess, both of the officers' and ship's company, was for this purpose furnished with a shallow box filled with mold, in which a crop could generally be raised in from eight to ten days." On the 18th of January, 1822, the stove-pipe in the commander's cabin took fire, creating a momentary alarm, but no damage. On the 1st of February they were very agreeably surprised by a visit from a party of Esquimaux, who had settled in winter quarters about two miles from the ships. A small party of English accompanied them to the village, which consisted of five huts recently erected. The establishment comprised sixty persons, with their dogs, sledges and canoes. On examination it was found that the huts were made entirely of snow and ice. "After creeping through two low passages having each its arched doorway, we came to a small circular apartment, of which the roof was a perfect arched dome. From this three doorways, also arched, and of larger dimensions than the outer ones, led into as many inhabited apartments, one on each side, and the other facing us as we entered. The women were seated on the beds at the sides of the huts, each having her little fireplace or lamp, with all her domestic utensils about her. The children crept behind their mothers, and the dogs slunk past us in dismay. The construction of this inhabited part of the hut was similar to that of the outer apartment, being a dome formed by separate blocks of snow laid with great regularity, and no small art, each being cut into the shape required to form a substantial arch, from seven to eight feet



ROBINSON SNOW VILLAGE

high in the center, and having no support whatever except what this principle of building supplies. Sufficient light was admitted into these curious edifices by a circular window of ice, neatly fitted into the roof of each apartment." The unexpected cleanliness of these huts astonished the visitors, but they afterward found that it was largely due to their newness. The usage of a few months made them much less attractive, but the tribe were nevertheless judged to be more neat than most of their race. With one or two exceptions they were found to be honest, and in their domestic relations quite affectionate. One of the boys declined all overtures to leave his parents because it would make them cry. The women were occupied with the usual domestic cares, and not required to take part in fishing or hunting. But few of them could count beyond five, and were slow to learn English. Yet within the range of their own experience they were sharp and alert. They kept themselves comfortably and neatly clothed, and were ingenious in devising means of providing for their wants. When their supply of food ran low for a few days, and the ship's bounty was extended to them, it was noticed that their first care, before partaking of any of it, was to hurry back to the village to feed their little ones.

There was noticeable among them the usual variety of disposition and intellect; and Parry grows enthusiastic over one of the boys in whom he recognized an aptness to learn, which would have made him a famous scholar in England. His sister, Iligliuk, also attracted their notice by her marked intelligence and love of music, and became useful as an interpreter between the English and the more stolid or indifferent of the tribe. Having observed that they were acquainted with the four cardinal points of the compass, the commander marked them on a sheet of paper, on which he designated also a spot to represent the location of the ships. Iligliuk was then requested "to complete the rest, and to do it *mikkee* (small), when, with a countenance of the most grave attention and peculiar intelligence, she drew the coast of the continent beyond her own country, as lying nearly north from Winter Island. The most important part still remained, and it would have amused an unconcerned looker-on to have observed the anxiety and suspense depicted on the

countenances of our part of the group till this was accomplished, for never were the tracings of a pencil marked with more earnest solicitude. Our surprise and satisfaction may, therefore, in some degree be imagined, when, without taking the pencil from the paper, Iligliuk brought the continental coast short round to the westward, and afterward to the south-southeast, so as to come within a few days' journey of Repulse Bay. The country thus situated upon the shores of the Western or Polar Sea is called *Akkoolee* (now Melville Peninsula), and is inhabited by numerous Esquimaux; and half way between that coast and Repulse Bay, Iligliuk drew a lake of considerable size, having small streams from it to the sea on each side. To this lake her countrymen are annually in the habit of resorting during summer, and catch there large fish of the salmon kind, while on the banks are found abundance of reindeer. To the westward of *Akkoolee*, as far as they can see from the hills, which she described as high ones, nothing can be seen but one wide, extended sea. Being desirous of seeing whether Iligliuk would interfere with Wager River (about 100 miles to the south of Winter Island, opening to the west from Rowe's Welcome), as we know it to exist, I requested her to continue the coast line to the southward of *Akkoolee*, when she immediately dropped the pencil and said she knew no more about it." "Others of the more intelligent of the tribe being tested on the same subject, "their delineations of the coast made without any concert among them, agreed in a surprising manner." From the head of Repulse Bay to the northern sea of these Esquimaux, now known as the Gulf of Boothia, was three *senicks* (sleeps), or days' journey.

"Considering it desirable," says Parry, "to increase by all the means in our power the chances of these people giving information of us, we distributed among several of the men large round medallions of sheet copper, having these words punched through them: 'H. B. M. S. Fury and Hecla, all well, A. D. 1822.'" Smaller medals with "Fury and Hecla, 1822," only, were given to the women, to be shown to any *Kab-loona* (Europeans) they might fall in with. Five or six of the most deserving men were presented with staffs for their spears, into the wood of which were driven small nails forming the words "Fury and Hecla, 1822."

As the weather grew warmer, the huts were felt to be too confined, and they proceeded to enlarge them in a manner highly creditable to their ingenuity. They built the new around and over the old, which they then removed from within. They had early exhibited to their visitors, at the commander's request, the method of construction, erecting one in their presence in a few hours. Parry and some others accompanied them in one of their seal-fishing expeditions, and noted with surprise and admiration the skill, patience and endurance with which they carried on that important business. "It was impossible not to admire the fearlessness as well as dexterity with which the Esquimaux invariably pursued it." Among other noteworthy characteristics of these people it was observed that, although the seal or walrus, or whatever else they succeeded in catching, was invariably taken to the hut of the party immediately concerned in securing it, all others were made partakers of this good fortune. Early in March a number of them transferred their residence to the ice, some five or six miles from the ships, perhaps for greater convenience in fishing, and quickly erected four new huts. Some two weeks later they were joined by others from the old village, and a few erected huts near the ships; but far or near, intercourse was kept up. The English noted many superstitious practices among them; and one was found to be an acknowledged *angetkook*, or sorceror, who was believed to have a *toorngow*, or familiar spirit. He was about forty-five years of age, and bore the name of Ewerat. He did not seem to be a conscious impostor, but on the contrary, was a sensible, obliging man, and a first-rate seal catcher. When appealed to on occasion of illness, or for other purpose, to exercise his art, his lips began to quiver, his nose moved up and down, his eyes gradually closed, and the violence of his grimaces increased until every feature was hideously distorted; at the same time he moved his head rapidly from side to side, uttering sometimes a snuffling sound, and at others a raving sort of cry. Having worked himself into this ridiculous sort of frenzy, which lasted perhaps from twenty to thirty seconds, he suddenly discontinued it and suffered his features to relax into their natural form; but the motion of his head seemed to have so stupefied him, as indeed it well might, that

there remained an unusual vacancy and a drowsy stare upon his countenance for some time afterward. Togalat, his wife, asked him in a serious tone some questions respecting me, which he as seriously answered."

Early in May Capt. Lyon, accompanied by Lieut. Palmer, five seamen and three marines, was dispatched on an exploring expedition, with provisions for twenty days. He was instructed, after crossing to the continent to proceed along that coast to the northward, carefully examining any bend or inlet he might meet with, so as to leave no doubt, if possible, of its actual extent and communications, thereby preventing the necessity of the ships entering it on their arrival there." The result of this expedition, from which they returned in safety on the evening of the 21st, was to confirm what they had learned from Iligliuk, of the conformation of the mainland, around the northern extremity of which they hoped to find the coveted passage to the Polar Sea. On the 15th James Pringle, a seaman, was instantly killed by falling from the topmast to the deck of the *Hecla*; and forty days later they lost two men on the *Fury*, by disease; William Souter, quartermaster, after a short illness, and the invalid, Reid.



CHAPTER XXXI.

PARRY ATTEMPTS TO FREE HIS SHIPS — IGLOOKLIK ISLAND — A NE-CROPOLIS — SUPPOSED DISCOVERY OF THE POLAR SEA — HECLA AND FURY STRAIT — GLUTTONY — UNUSUAL PHENOMENON — MELVILLE PENINSULA EXPLORED — SUCCESSFUL ANGLING — STILL BESET — DEATH FROM SCURVY — WELCOME AT SHETLAND ISLANDS.

From the 3d to the 21st of June they were engaged in cutting canals for the ships to escape to sea whenever an opportunity offered. This opportunity was supplemented by the action of the ice itself toward the close of their labors. On the 19th a body of sea ice was driven by a southerly breeze against the bay ice, which, weakened by their labors, broke asunder, forming a new channel, but closing the canal they had constructed. In a few days the action of the wind and tide reversed, re-opening the artificial channel, into which they hastened to float some loose masses of ice to keep the sides from being again driven together. It was not, however, till the 2d of July, after almost nine months' detention, that the ships were able to leave the roadstead. Sailing northward, they were in great danger from ice-floes and icebergs until the 12th, when they reached, in latitude $67^{\circ} 18'$, the mouth of a river, where they anchored. This they named Barrow River, in honor of Sir John Barrow, secretary to the admiralty, and an active promoter of Arctic voyages. On the next day, in pushing their exploration up stream, they found a beautiful cascade of two falls of ninety and fifteen feet, respectively. Higher up they found two other smaller cataracts; and were, altogether, much delighted with the novelty of the experience. Their pleasure was further enhanced by the richness of the vegetation on its banks, and the killing of some reindeer. Leaving Barrow River with a favorable wind they soon reached a headland, which they named Cape

Penrhyn, and on the next day encountered great numbers of walrus, as they had been led to expect from the accounts previously given by Iligliuk and the other Esquimaux. They were seen lying in large herds upon loose pieces of drift-ice, huddled close together, and even upon one another, not less than two hundred being in gunshot. They killed a few and found the flesh palatable, though somewhat objectionable at first, because of its dark color.

On the 16th they arrived at the entrance of the channel which Iligliuk had marked on the chart as opening to the west, but only to find it closed by an unbroken sheet of ice. Here they encountered some Esquimaux, with whom they landed on Iglooklik Island. The encampment comprised sixteen tents, in two divisions of eleven and five, half a mile apart. These natives were found willing to exchange commodities, but altogether unaccustomed to receiving anything without giving an equivalent. Unfortunately the visitors, in their desire to win the confidence of these simple people, began to bestow presents, and naturally they soon became as willing as their kindred on Winter Island, and others of the same race elsewhere, to take gifts. After a night spent in the tents, to which they had been driven back from the sea by the stress of weather, the visitors gained their ships and stood to the west. They, however, made but little progress, and landed again on the 23d, to visit the village, having meanwhile been visited on shipboard by the Esquimaux. This time they had an opportunity of inspecting the permanent villages at the distance of less than a mile inland from the tents. These were of the same shape as the snow huts on Winter Island, but of different material. Here the lower part of the circle was of stone, and the rest of bones of the whale and walrus, gradually inclining inward and meeting at the top, with the interstices filled with turf, a layer of which also covered the



ILIGLUK.

whole of the outside. This, with the added layer of snow which enveloped the whole structure in winter, made these huts quite warm. The entrance is always from the south, and consists of a passage ten feet long and not more than two in height and width, through which, therefore, it is necessary to crawl to gain the hut. These passages are made of flat slabs or large stones, and like the huts, are covered with turf to keep out the cold. Lying all around were seen great quantities of bones of the whale, walrus, seal, as well as bears, wolves and dogs. The visitors were not a little shocked to find human bones among the others. But a greater surprise was in store for them; for as soon as they were seen to put a skull or two into their bags, the natives volunteered to hunt up some more, which they thrust into the same receptacles, with no more compunction than if they had been the skulls of wolves, instead of perhaps their own grandfathers.

On the 24th they were able to get some salmon from a late arrival in the village, who stated that more could be obtained at a distance of three days' journey. Capt. Lyon, accompanied by George Dunn, volunteered to go with the new-comer, Toolemak, in search of the coveted salmon. Equipped with the necessary supplies and four days' provisions, they set out, but were prevented by open water from reaching the designated fishing-ground in their sledges. On the 27th, while on this excursion, Lyon discovered over thirty small islands, varying in size from a hundred yards to a mile or more in length, which he named Coxe's Group. Meanwhile, the ships waited in vain for the breaking up of the ice, and could only gain at intervals of several days a half-mile or so, as an occasional break would occur. On the 14th of August the commander, with one officer and four men, and ten days' provisions, set out to reach, if possible, a point on the mainland whence he could overlook the strait. On the 18th they reached the desired point, whence, looking to the west, they could see no land, and quite naturally inferred that they had discovered the Polar Sea, in what is now known as the Gulf of Boothia. The narrow channel at their feet, connecting Fox Channel with this sea, Parry named the Strait of the Fury and Hecla, which it still retains. It varies in width from eight to forty miles, and is studded with islands. Its west-

ern entrance is in latitude 70° and longitude 85° . Returning on the 20th, the ships slowly labored to the west, and on the 26th were at the entrance to the narrows, when their way was again effectually blocked by a continuous line of unbroken ice lying right across the strait. This they tried to bore through by crowding sail, and did succeed in penetrating to a distance of 300 yards, but were compelled to desist. Casting anchor on the edge of the floe, they reconnoitered on all sides, and on the 29th found an opening which enabled them to push a little to the west, to the vicinity of what was afterward named Amherst Island. Three exploring parties, under Capt. Lyon and Lieuts. Reid and Palmer, were now dispatched in the hope of finding an open channel. On the 3d of September the commander set out on the same errand at the head of a small party, and satisfied himself that there was no navigable passage for ships in that latitude. The investigations of the others tended to confirm this opinion; and nothing remained but to await the dislodgment of the ice, which it did not seem probable would occur that season. Here they lay until the 17th, without any opportunity to advance, and finding the new ice rapidly forming around the ships, they concluded to return to Iglooklik Island for winter quarters. On the 24th they arrived in front of where the Esquimaux encampment had been when they had first entered those waters, and soon saw their old friends scampering from the huts to the beach to greet them.

After some days spent in exploring the neighboring islands in boats, and receiving additional confirmation that the Strait of the Fury and Hecla was the only channel to the west, they settled down to the work of berthing the ships. This occupied the first half of October, and the same provision was made for the security of the ships and stores, as well as for the health and comfort of the men, as on former occasions. The daily visits of the friendly natives were a never-ending source of interest and amusement to officers and men, which no resources of their own could have so well supplied. This enabled them to dispense with the labor of theatrical representations, which had also lost their novelty and attractiveness. They secured a sheltered space for exercise and recreation by erecting high snow walls, which not only added sensibly to the

warmth of the ships, but was moreover a protection against snow drifts.

The Esquimaux suffered from scarcity of provisions before the close of the winter, though with anything like economy they could easily have lived on the supplies they had provided in advance, as it seemed to their English friends. It had already been often noticed what immense quantities of food they could consume; and it was now thought worth while to make a careful test of their powers in that direction. For this purpose a young man, scarcely full grown, was selected, and left at entire liberty to eat all he wanted of staple food previously weighed. It was found that in twenty hours he had consumed $8\frac{1}{2}$ lbs. of sea-horse flesh—half being supplied frozen and half boiled—and $1\frac{3}{4}$ lbs. of bread, besides $1\frac{1}{4}$ pints of gravy, soup, 1 gallon of water, 1 tumbler of whisky and water, and three wine glasses of raw spirits. There was no evidence of gorging or over-feeding in this performance, and the party concerned did not manifest any sense of having consumed an abnormal quantity of food. The English had, however, noticed a tendency to deliberate gorging in other instances, especially when plenty succeeded privation. Some were seen in the huts so distended by the quantity of walrus-meat they had eaten, that they were unable to move, and complained of severe pain, which the observers could only ascribe to that cause. They inferred that a great part of the illness from which the inhabitants of Iglooklik suffered, and of the deaths which ensued, was due to the frequent changes from excessive to insufficient feeding. On Winter Island, where there was less fluctuation in this respect, there had been but little sickness and no deaths, the preceding winter, among the natives.

For the first time in Parry's Arctic experience, he frequently saw "hard, well-defined clouds, a feature he had hitherto considered as almost unknown in the winter sky of the Polar regions." And in the spring, about the time of the sun's reappearance, "the glowing richness of the tints with which they were adorned," excited his admiration. "Another peculiarity observed in this winter, was the rare occurrence of the Aurora Borealis, and the extraordinary poverty of its display whenever it did make its appearance. It was almost invariably seen to the south-

ward; never exhibited any of those rapid and complicated movements observed in the course of the preceding winter; and did not produce any sensible effect on the gold leaf in the electrometer."

On the 20th of April the commander announced to the officers and crew of both ships that the *Hecla* was to return to England on the opening of navigation, and an opportunity was given to such of her officers and men as chose to volunteer to remain with the expedition. On the 5th of May, with the aid of their dogs, the necessary transfer of provisions and stores for one year was made from the *Hecla* to the *Fury*, without any exposure or labor to the crews outside their respective ships. As an illustration of what the dogs could achieve, Parry states "that nine dogs of Captain Lyon's dragged 1,611 pounds a distance of 1,750 yards in nine minutes, and that they worked in a similar way between the ships for seven or eight hours a day." The road was, however, very good at this time, and the dogs the best that could be procured.

On the 7th of June, having previously made all necessary preparations, Captain Lyon, accompanied by two men and ten dogs, and the necessary provisions for a trip of thirty days, set out for an exploration of Akkoolee, which they had named Melville Peninsula. A slight exploration of the land across the strait—which they named Cockburn Island, believing it to be such from information received of the Esquimaux—had been made before going into winter quarters. Parry accompanied Lyon for a few days with a small party in the hope of finding Toolemak's salmon lake on the route. They found the lake, but after twenty-four hours fishing through a hole in the ice, they failed to catch any salmon or fish of any kind. Lyon had started south on the 9th, parting company with Parry and his companions, who occupied themselves in shooting ducks and making observations until the 14th, when they returned to the ships, with thirty or forty ducks each. On the 20th some Esquimaux from the vicinity of Pond's Inlet, visited Iglooklik and the ships. They had seen the English whalers on their native coast of Toonoonck, and their sledge was made from pieces of some vessel wrecked or damaged there. They informed him of the wreck on that coast, of two ships, which he afterward ascertained



ESQUIMAUX FISHING.

were the Dexterity of Leith, and the Aurora of Hull, which were abandoned on the 28th of August, 1821, about the latitude of 72° on the west coast of Baffin's Bay. On the 24th Parry set out again, this time in company with Tooleemak, for the salmon fishery, and reaching it as before within two days, by sledge, they succeeded, after several hours' fishing on the 25th and 26th, in catching one small fish—only one, notwithstanding the earnest supplications of Tooleemak and his wife to the goddess of fishing, entreating her special graciousness to the good Kab-loona who had done so much for her faithful Esquimaux. On the 27th, in another pool, Tooleemak had better success, and before leaving for the ships on the 28th, he directed the English to a stream at some distance, which proved to be the true salmon fishery. On the 1st of July they found the spot and saw the remains of two salmon that had been thrown upon the ice, and returned on the 2d to the ships, intending to send out a fishing party for whose use they left behind their fishing equipment. On this trip, when they had gone into camp at ten o'clock the first night out, Parry found that his team of ten dogs had drawn his sledge, loaded with about 1,200 pounds, a distance of forty statute miles, half of the road being very indifferent. Lyon had however, returned unsuccessful from the mainland.

They were now visited by a party of twenty Esquimaux from the shores of Baffin's Bay, and the same region as their former visitors. These also were acquainted with the story of the abandonment of the two whalers. Lieutenant Hoppner now conceived the idea of crossing Cockburn Island to the scene of the disaster, with one of the twenty as guide, but found the whole party, together with what might be termed the resident Esquimaux, had abandoned Iglooklik on the 4th. It now became necessary for the English to provide walrus-meat for their dogs, and four boats were so engaged for three weeks.

On the 16th Hoppner returned, having only reached the south coast of Cockburn Island, beyond which his guides had not yet determined to proceed. Two of the Esquimaux accompanied Hoppner's party to the ships, loaded with various useful presents, and returned the next day to their fishing grounds. On the 19th the party which had been sent to the

salmon stream returned, with ample proof that Toolemak had not been deceiving them with an Esquimaux fish story; for they brought back 640 pounds of salmon, besides ninety-five of venison. The fish varied in length from twenty to twenty-six inches, and one of the largest, when cleaned, weighed eight and a half pounds. Toward the end of the month symptoms of scurvy appeared in four or five of the crew of the Fury, but soon yielded to medical treatment.

The 1st of August, 1823, had now arrived, and yet the ships were as securely held by the ice as in mid-winter. On the 4th they began to saw the ice, and on the 8th the ice about the Fury began to move under a northern breeze, when, crowding sail on the ship, she was got entirely free; but the Hecla still remained beset. On the next day she, with the floe in which she was embedded, was carried out to where the swell of the sea soon broke away the ice girdle, and she was also free. Meanwhile, Parry, with the concurrent advice of his officers, had determined not to risk another winter in these regions, with the small hope there was of penetrating to the west in the short season that remained. Both ships returned to their late winter quarters, which they named Turton Bay, to lighten the Fury by the re-transfer of the surplus stores, and to make their arrangements for final departure from the scene of their ten months' detention. On the 12th they sailed away to the southeast under a favorable wind, and on the morning of the 14th were off Ooglit Island, twelve leagues distant from Iglooklik. Here they received a final visit from a number of their Esquimaux friends, whom they loaded down with gifts, being more free to give what they would no longer need, as the ships were now bound for home and plenty. Full rations had been restored to the men, and entire freedom in the use of anti-scorbutics, the recognized tendency to scurvy in numbers of the officers and men having been perhaps the most weighty influence in determining the commander to forego his contemplated purpose of spending another season in the attempt to get through the Strait of the Fury and the Hecla. On the 27th they were able to leave Owlitteewik Island, having made but little progress for the preceding fortnight. Now, however, being less beset by ice, and again favored by a breeze from the north, they

proceeded more rapidly to the south, and on the 31st they reached Winter Island. The distance from Ooglit was about 160 miles; of these they had really sailed only forty, having drifted the remainder with the ice by which they were beset, showing an average drift rate of fifteen miles a day, and five of sailing. On the 6th of September, Fife, Greenland or ice master of the *Hecla*, died of the scurvy, owing partly to his own aversion to the use of unpalatable remedies. They continued to be embarrassed by the ice—one or the other of the ships being in immediate danger of destruction, or at least serious injury, or permanent detention—until the 17th, when at length they were able to make due east in an open sea across Fox Channel for Hudson's Strait.

Passing by Trinity Islands on the 18th, and meeting no obstruction from ice or other cause in Hudson's or Davis' Straits, they made a quick voyage across the Atlantic, reaching the Orkneys in three weeks from the western entrance of Hudson's Strait, on Oct. 9, after an absence of twenty-seven months. On the 10th they entered the harbor of Lerwick in the Shetland Islands, finding it impossible to proceed south because of adverse winds, which also kept them weather-bound for three days, in Bressa Sound. "On the first information of our arrival," says Parry, "the bells of Lerwick were set ringing, the inhabitants flocked from the country to express their joy at our unexpected return, and the town was at night illuminated, as if each individual had a brother or a son among us." On the 13th they proceeded south, arriving off Buchan Ness on the next day. On the 16th Parry left the ships, going ashore at Whitby, whence he proceeded by land to London. Arriving on the morning of the 18th, he went at once to the Admiralty to give an account of his second voyage to the northwest. The ships soon arrived safely in the Thames, with 113 out of 118 officers and men in good health, after spending two consecutive winters in the ice, with the mean temperature several degrees below zero.

CHAPTER XXXII.

SECOND VOYAGE OF FRANKLIN—STATE OF ARCTIC SCIENCE—PREPARATIONS AND PLAN—DEATH OF FRANKLIN'S WIFE—FRANKLIN PLANTS HIS FLAG ON AN ARCTIC ISLAND—FORT FRANKLIN—DESCEND THE MACKENZIE—SEPARATION OF THE TWO PARTIES—SERIOUS ADVENTURE WITH ESQUIMAUX—THE BOATS PLUNDERED—FRANKLIN'S RETURN—SUCCESS OF RICHARDSON—RETURN TO ENGLAND.

Arrived in England, Franklin, Back, and Richardson were honored, congratulated, and feted, in a manner somewhat resembling the triumphs given to the ancient Latin heroes. Upon Franklin was also bestowed the rank of Captain. It would naturally be supposed that these bold men, after suffering the agonies of hunger and braving the dangers of Boreas for three long years, would be content to rest on their laurels. Such, however, was not the case. The explorations of the early part of the nineteenth century, particularly the events just narrated, had whetted the appetites of scientific men for more accurate knowledge concerning the mysterious regions of the earth's axial termini. Investigation, too, was beginning to take a more definite form, and to strike at a more definite object. The existence and possible commercial value of a Northwest Passage was more firmly believed in, and operations in the line of exploration were largely conducted with reference to its discovery, or to its utility in that important event. It was desired to know more fully the character of the land bordering on the Polar Sea—of the resources which it possessed, of the people who inhabited it, and of the probable future value to civilized nations of this hitherto unexplored wild. Moreover, Arctic explorations had been hitherto fostered almost wholly by Great Britain, and that, too, it may be said, in a disinterested way, and not wholly nor chiefly for her own political or mercantile aggrandizement.

In 1825, then, the admiralty having decided to investigate more fully the western portion of America's northern coast, Capt. John Franklin was chosen as the leader of an expedition for that purpose. Dr. Richardson again offered his services as surgeon; which the admiralty, knowing his peculiar power and value, were glad to accept. Lieut. Kendall, a distinguished draughtsman and surveyor, was engaged to assist in the technical portion of the work. The party was further to be accompanied by the accomplished Lieut. Bushnan; but that young man, and promising officer, died just before the expedition set out. Lieut. Back returned just at this time from the West Indies, and being, as we have seen, somewhat familiar with Arctic navigation, his services were also sought and engaged.

The preparations for this journey were made with particular reference to avoiding the harrowing scenes of the previous voyage, and as we shall gladly record, the effort was entirely successful in this particular. The boats for the occasion were built at Woolwich, under Capt. Franklin's direct supervision, and were well calculated to withstand the shocks always foreseen in the Frigid Zone. One of them, designated the "Walnut Shell," deserves especial mention. It was only eighty-five pounds in weight, and was so constructed as to admit of being taken to pieces, and conveniently carried from place to place. When thus in pieces, it could be put together again in twenty minutes. It was fitted with a rubber covering, making it a comfortable rendezvous from storms and bad weather. A trial of these vessels was made at Woolwich, in the presence of several officers of the navy, and they were found to endure well any test imposed.

The directions given by Earl Bathurst, the Lord of the Admiralty, for the guidance of the party, were substantially as follows:

The whole party were to proceed to the interior of America in the summer of 1825, and were to establish winter quarters somewhere on MacKenzie's River. They were to spend the winter in exploring and surveying such of the more important lakes, rivers, and mountains in their vicinity, as had not previously been examined, and were to hold themselves in readiness to start early in the spring of 1826, upon their

trip to the mouth of the MacKenzie, in order to have as much of the summer as possible for the important work which they were about to undertake. Arrived at the mouth of the great river, Capt. Franklin, with Lieut. Back and a part of the men, was to explore the coast westward, until he should meet a party who were to arrive by way of Behring's Strait, and were to co-operate with him in his investigations. In the meantime, Dr. Richardson and Lieut. Kendall, with the residue of the men, were to proceed eastward from the MacKenzie to the Coppermine, which will be remembered as the point of departure of their previous coast survey. This would make an unbroken and nearly complete chain of surveys between east and west; and thus the preliminary work of proving the existence of a Northwest Passage from Baffin's Bay to Behring's Strait, would be in substance accomplished.

The death of Franklin's wife on the day after his departure has already been referred to; she had been very low for some time, but in spite of her condition, she, with remarkable ambition, urged him to leave her, and to sail on the day appointed by the Admiralty. Notwithstanding this calamity, Franklin, when the news was brought him, concealed his sorrow as far as possible, so that he might not be the means of depressing the spirits of his officers and men.

The expedition having been duly conveyed to Hudson's Bay, the boats and crew all the way by water, and the officers by land through New York and Canada, the whole party met about 1,200 miles in the interior, on the 29th of June, 1825. This junction took place in the Methye River (latitude $56^{\circ} 10'$ north; longitude $108^{\circ} 55'$ west) which is almost the head of the waters that flow from the north into Hudson's Bay. After traversing this river with much difficulty, on account of its rapidity and shoals, the expedition pushed on to Fort Chipewyan, where it arrived about the middle of July. The inhabitants here were much surprised to see the adventurers so early in the season; being only two days later than a former party, who had spent the preceding winter in Canada. At Fort Chipewyan, the party received material addition to their store, and also secured the service of several Indians, whose faithfulness they had had opportunity to prove upon the previous voyage.

As there was still considerable time before winter would set in, Franklin proceeded according to a plan which he had cherished ever since he set out from England. He first conducted the party to the MacKenzie, and descended to a point which he deemed suitable for winter quarters. He then instructed Dr. Richardson to proceed across the country and discover some convenient point on the Coppermine to reach, when he should traverse that river in returning from his projected trip for the following summer. He, himself, thought it prudent for him to descend the MacKenzie to the sea, and make with a selected crew some observations preliminary to leading the whole party there in the following summer. This plan was executed, and the sea was reached after an eventful journey. The occasion of their arrival at the seaboard is thus described by Franklin:

“Immediately on reaching the sea, I caused to be hoisted the silk flag which my deeply-lamented wife had made, and presented to me as a parting gift, under the express injunction that it was not to be unfurled until the expedition reached the sea. I will not attempt to describe my emotions as it expanded to the breeze; however natural and irresistible, I felt that it was my duty to suppress them, and that I had no right by an indulgence of my own sorrows to cloud the animated countenances of my companions. Joining, therefore, with the best grace I could command, in the general excitement, I endeavored to return with corresponding cheerfulness, their warm congratulations on having thus planted the British flag on this remote island of the Polar Sea.”

As the autumn drew on, both parties returned to the point which had been previously selected as quarters for the winter. Substantial huts of wood and stone were erected, and every precaution taken to make the coming winter as tolerable as could possibly be done. The place was named Ft. Franklin, after the gallant leader of the expedition. The whole establishment now numbered about fifty persons; including five officers, nineteen British seamen, mariners, and voyagers, nine Canadians, two Esquimaux, three women, seven children, and one Indian lad; besides several infirm Indians, who required temporary support. The winter was spent according to the instructions of the admiralty, in

exploring and surveying the great lakes and the adjacent mountains, and in making topographical sketches of the country. Of this work, Dr. Richardson chiefly had charge; and his reports have become classics upon the geography of the portions examined.

The summer of 1826 found them preparing to descend the MacKenzie. Before starting, the boat and all the supplies were divided between the two parties which were to separate at the mouth of this river. The men were chosen out, and complete preparations made, in order to avoid the delay and inconvenience of doing it in a less comfortable place.

At the mouth of the MacKenzie, as at the mouths of most great rivers, there is a separation of the main stream into two principal parts, inclosing land to a considerable extent between them. Before this division was arrived at the expedition encamped to spend the night, and to afford an opportunity for the two parties to say their adieu, as they would naturally descend by the two different mouths, according to their instructions. As the parties entertained for each other sentiments of true friendship, the evening before their separation was spent in the most cordial and cheerful manner. They felt that they were only separating to be employed in services of equal interest; and they naturally looked forward with great delight to their next meeting when, after a successful termination, they might rehearse the incidents of their respective voyages.

It is impossible, for obvious reasons, to give the minute details of their interesting and successful enterprises. The judgment of British shipwrights seems to have been well taken, for the boats used on these occasions proved exactly adapted to the service required of them, and carried their valiant crews through all the storms and ice-bound bays with no fatal and few serious disasters. Franklin explored every bay, cape, mountain, river and inlet, as far as he went to the westward, but did not succeed in finding a single good harbor. He was the first to discover that the Rocky Mountains are not a contiguous chain but consist of several parallel ranges of greater or less extent.

During this season of the year Esquimaux were very frequent and anxious to trade. A difficulty occurred with them on this trip which

threatened to be disastrous. A kayak being overset by one of the boat oars, its owner was plunged into the water with his head in the mud, and was apparently in danger of being drowned. They instantly extricated him from his unpleasant situation and took him into the boat until the water could be thrown out of the kayak; and Augustus (the Esquimaux interpreter), seeing him shiver with cold, wrapped him up in his own great coat. At first the fellow was exceedingly angry, but soon became reconciled to his situation; and looking about, discovered that they had many bales of goods and other articles in the boat which had been carefully covered and concealed from the natives. He soon began asking for everything he saw, and expressed much displeasure on their refusing to comply with his demands. He went sulkily away, and doubtless his tale excited sympathy in the minds of the whole tribe, for an attempt was soon after made to dispossess the crew, of their whole store. A favorable chance presenting itself, two of the most powerful men jumping on board at the same time, seized Franklin by the wrists, and forced him to sit between them; and as he shook them loose two or three times, a third Esquimaux took his station in front of him to catch his hands whenever he attempted to lift his gun, or the broad dagger which hung at his side. The whole way to the shore they kept repeating the word "Teyma," beating gently on Franklin's left breast, and pressing his hands against their own. As the beach was neared, two oomiaks full of women arrived, and the shouts were redoubled. The other boat-load followed, and both were now brought to the shore. The three men who had held Franklin now leaped ashore, and those who had remained in their canoes, taking them out of the water, carried them a little distance.

A numerous party now drew their knives, and stripping themselves to the waist ran to the Reliance (the largest boat), and having first



ESQUIMAUX CHILD'S DRESS.

hauled her as far as they could, began a regular pillage, handing the articles to the women, who, ranged in a row behind, quickly conveyed them out of sight. Lieut. Back ordered the muskets to be drawn on them, but not to be fired till the word of command. This display frightened the natives, and they quickly dispersed. They afterward gave as a reason for their actions, that they had never seen white men before, and seeing so many things together, they could not resist the temptation to steal them. They strenuously promised better behavior, and wished to be restored to the good graces of the commander. A plot was also laid at one time to murder the whole party, including Augustus, the interpreter, but it was fortunately frustrated before any attempt was made to carry it out.

Franklin had intended and hoped to reach Behring's Strait, or at least to proceed far enough west to meet Capt. Beechey and his party, who were supposed to be approaching in that direction. Having seen no traces of him, however, and the summer being well gone, he decided to return to the MacKenzie. Two other important facts also justified his discontinuing the voyage. The instructions of the Admiralty had been to return at a certain time, which time was now nearly at hand. Another reason was found in the following generally believed report: The mountains along the shore were inhabited by a savage and cruel tribe of Indians, of whose numbers and ferocity the Esquimaux gave thrilling accounts. They had been accustomed to trade with the Esquimaux, and, on hearing of the white men's approach, and seeing the things which the Esquimaux had obtained in barter, they feared that their own trade with the natives would be ruined. Accordingly, a plan was laid to come down and destroy the whole party of whites, and take possession at once of their stores and trade. This could be easily accomplished, as they were determined and powerful warriors. All things considered, Franklin thought it prudent to reverse his course, and was soon on his way back to the mouth of the great river. In spite of storms and difficulties, he had traced the coast to the one hundred and fiftieth meridian, and seventieth parallel. Nearly 400 miles of coast were thus more accurately traced and located than it had hitherto been possible to do.

In the meantime, Dr. Richardson had been equally successful in his trip toward the east. He explored the coast all the way from the MacKenzie to the Coppermine, besides examining much of the interior. His untiring perseverance, uniform justice, and great nautical wisdom, did much to make Franklin's expeditions successful. His foresight was seen in all he undertook, and his party always found in him an example of diligence and of manly courtesy. He eulogized Lieut. Kendall as a very accurate and companionable gentleman, and as an instance of the former quality, cites the following fact:

Having been deprived of chronometers by the breaking of the two intended for the eastern detachment, during the intense cold of winter, the only resource left them for correcting the dead reckonings was lunar observations, whenever circumstances would permit. Yet when they approached the Coppermine River, Mr. Kendall's reckoning of the position of that place differed from the previous location by Franklin only by a few seconds—being a very trifling disparity when the great distance is taken into consideration.

Richardson secured 1,500 specimens of floral and animal life, many of which had never been classified before. His report of his voyage was very full and complete, and was completely satisfactory, both to Franklin and the admiralty. Having joined Franklin's party in the interior, the winter of 1826-7 was spent in Canada; and the party having succeeded beyond the general expectation, returned to England in the summer of 1827.



THE WALNUT SHELL.

CHAPTER XXXIII.

PARRY'S THIRD EXPEDITION—SLOW PROGRESS—NEW ICE ENCOUNTERED—THE FURY SWEPT AWAY—WINTER AT PORT BOWEN—OBSERVATIONS—HUNTING—CAPTURE OF A WHALE—THE FURY ALEAK—INSPECTING THE SHIPS—THE FURY ABANDONED—REPORT TO THE ADMIRALTY.

The third expedition to the Northwest, in charge of Commander Parry, was soon equipped. To the usual stores were added preserved carrots, parsnips, and salmon, together with pickled onions, beets, cabbage, and split peas; also a small quantity of beef pemmican, made after Capt. Franklin's recipe, by cutting the meat into thin slices, which, being dried in the sun and pounded, are mixed with a small quantity of melted fat, and compressed into bags. The ships were the same as before; but the Hecla was under the immediate command of Parry, and the Fury, under Captain Hoppner, promoted from the rank of lieutenant, which he held in the previous expedition; Captain Lyon being detailed, as we will see farther on, for a special exploration in the Griper. The William Harris, under Lieut. Pritchard, was joined to the Hecla and Fury as a transport until they should reach the ice. They left Deptford near London, May 8, 1824, and on the 10th took aboard their ammunition and powder at Northfleet, near Gravesend, at the mouth of the Thames, whence they proceeded on their voyage. On the 3d of July they dismissed the William Harris, after having transferred her surplus stores to the Hecla and Fury amid the ice-floes of Davis' Strait, out of which she was towed by the ship's boats into clear water. With their now heavily-laden vessels, under light northerly winds they made but little progress for several days. Once or twice it became necessary to tow the ships with their boats from a dangerous proximity to icebergs, of which they counted at one time no less than one hundred and three from the

deck. The crews were kept constantly at work, heaving, warping, sawing, and using every device known to their craft in Arctic navigation, to keep clear of the icebergs, and make a little headway.

By the end of July they made but seventy miles to the west, since parting with the transport. Five weeks longer they kept up the daily and hourly struggle with the ice, some of which was over twenty feet thick, above the surface of the water, and reaching out of sight from the mast-head. Through such barriers and obstacles they could often only work by towing with boats and warping with hawsers, gaining here an entrance by sawing the ice, and there through some natural opening between the floes. By such toil and labor did they achieve a progress of about four hundred miles, arriving at length in sight of the headlands of Lancaster Sound, in open water, on the 10th of September. It was noticed that for some time the ice had been growing less in thickness as well as in the extent of the floes, so that on the whole the farther they got to the northwest, the easier was their progress, the obstruction being greatest about the middle of the ice-pack, where also were seen the largest number of icebergs.

They had now accomplished only the preliminary stage of the voyage, Lancaster Sound being again the preconcerted starting point of the exploration. It was hoped that the ice-barrier encountered five years before, after penetrating Prince Regent Inlet, would prove to have been peculiar to the season; and that a passage would now be found practicable by that route. It was determined that the trial should be made, and this was the direct object of the present expedition. Unfortunately it had set out too late, or had been too long detained in the ice-pack of Baffin's Bay, to have much chance of success the first season. On the 13th, in sight of Cape York, the eastern headland of Prince Regent Inlet, they encountered new ice, which formed very rapidly, and grew in thickness from day to day. Towing with the boats, backing and veering, and hauling the ships, they kept moving, but often as much backward as forward, until the night of the 17th, when they were completely hemmed in. The ice extended in one mass to the shore, thickened by the natural process of continual freezing, and still more by the action of

the wind and swell, which rolled it upon itself, layer upon layer, sometimes to a hundred feet in thickness, forming impenetrable hummocks. They now began to saw a canal so as to get the ships nearer the shore, in the event of being unable to get out of the ice. On the 21st, through the opening thus partially effected, the ships were slowly squeezed toward the land by the pressure of the ice from without, but on the next day were threatened with being driven with the surrounding ice out to sea by a change of wind. Hawsers were now run out to the land-ice, and the Hecla was thus secured; but the Fury, which lay farther out, was swept off with the ice. The hawsers of the Hecla were soon cut one after another by the drifting ice, but not before they had succeeded in casting anchor. In an hour the moving floe was parted in two by its own action against the chain cable, and the sawing operations of the crew, leaving the Hecla afloat in clear water, about half a mile from the shore. Meanwhile the Fury had been carried by the wind beyond an iceberg grounded off a small headland, and was cleared from the floe by great exertion on the part of her commander and crew, some five or six miles away, where she was joined by the Hecla before night. On the morning of the 27th they found themselves at length free of ice, and within a few miles of the western shore of Prince Regent Inlet. At noon they were abreast of Jackson Inlet, and before night had made Port Bowen, which Parry had now determined to make their winter quarters for the season.

Here the usual arrangements were made, with some improvements for heating and ventilating the ships, and with masquerades, instead of theatrical representations, as amusement for the men. The schools were resumed with very satisfactory results, and less distraction, as there were no Esquimaux in the vicinity. Taught by experience, they had learned to place the stoves in the very bottom of the hold, which, with their other appliances, enabled them to keep the temperature of the ships at an average of 56° ; so that with improved heating apparatus and the preserved and pickled vegetables already referred to, the general health of the men suffered less derangement than on any of the preceding expeditions.

SUN AT MIDNIGHT.



An incident related by Parry is worth reproducing in illustration of the distance which the voice can reach in favorable circumstances. Lieut. Foster having occasion to send a man from the observatory to the opposite shore of the harbor—a measured distance of 6,696 feet, or about one statute mile and two-tenths—in order to fix a meridian mark, had placed a second person half-way between, to repeat his directions; but he found on trial that this precaution was unnecessary, as he could without difficulty keep up conversation with the man at the distant station. “The thermometer was at this time 18° below zero, the barometer 30.14 inches, and the weather nearly calm, and quite clear and serene.” It was noticed that the meteors or falling stars were much more frequent especially in December, than in any previous winter of their residence in the Arctics. They also observed a particularly brilliant display of Aurora Borealis on the 23d of Febrary, the next day after the sun had become visible at the ships. Owing to the height of the hills surrounding Fort Bowen, the sun had been hidden from the harbor for 121 days, though to those who took the trouble to ascend the hills his reappearance was made manifest twenty days earlier. “It is very long after the sun’s reappearance in these regions, however, before the effect of his rays, as to warmth, became perceptible,” says Parry; “week after week with scarcely any rise in the thermometer except for an hour or two during the day; and it is at this period, more than any other, perhaps, that the lengthened duration of a Polar winter’s cold is most wearisome, and creates the most impatience.” It was not till the middle of June that there was any considerable amount of water from the melting snow on shore.

There were more bears killed by the crews this winter than in all the previous seasons put together. From October to June, twelve were secured, and many more seen that they were unable to kill. On two occasions they witnessed the strength of parental affection in these animals, the mothers staying to protect their young when they might easily have escaped. One or two foxes were killed, and four were caught in traps. “The color of one of these animals, which lived for some time aboard the Fury, and became tolerably tame, was nearly pure white, till the

month of May, when he shed his winter coat, and became of a dirty chocolate color, with two or three light brown spots." Only three hares were killed, whose fur was "thick, soft, and of the most beautiful whiteness imaginable." One ermine and a few moose, complete the scanty list of quadrupeds at Port Bowen. No deer or wolves were seen, but toward the end of June they were able to kill several hundreds of dovekies, which made an acceptable change in their diet. On one of the numerous excursions for shooting these, John Cotterell, a seaman of the Fury, was drowned in a crack of the ice, on the 6th of July.

Six days later the ice began to detach itself, and they succeeded in killing a small whale, the oil of which they needed for another winter's consumption, in the event of their being detained so long in the Arctic regions. They began the usual operations of sawing a canal for the ships, the work proving an unusually heavy task, as the ice was in some places over ten, and generally from five to eight feet thick. On the 19th a welcome stop was put to this arduous labor, by the separation of the ice across the harbor, not, however, without a final tug at the saws all night to cut away the intervening ice. In two hours of the ensuing day they succeeded in towing the vessels into the open sea of Prince Regent Inlet, after twenty-six hours of continuous work. Parry now made for the western shore, intending to coast North Somerset to the south, judging from his former inspection of that region that it would be found to trend to the west. Trying in vain to penetrate the ice-barrier, they moved northward until the 24th, when a channel was found along the western shore about two miles wide, the ice having been driven to the east by a gale. They were then at Leopold Island, in Barrow's Strait, whence they proceeded again to the south along the channel thus opened along the coast of North Somerset. On the 28th their further progress was blocked by the ice in latitude $72^{\circ} 51' 51''$, within about twelve miles of the most southern point sighted on the same coast in 1819. On the 30th, the Hecla was worked a mile and a half further to the south, a narrow channel having been opened in the ice by the action of the wind. The next day the Fury was driven aground by the pressure of the ice under the influence of a northern gale, but was got

off at high water by the exertions of both crews, without serious injury.

On the 1st of August both ships were hemmed in by the ice and driven with it to the shore, on which they grounded, the Fury being severely injured by an extra pressure from the coming floe after she had already struck, which forced her heavily against the land-ice of the beach. The Hecla was gotten off at high water, the ice fortunately receding, and anchored to a floe at midnight. The Fury also succeeded in getting afloat, but was found to be leaking badly. They now made a strenuous effort to enter a small harbor, which they opportunely discovered at a short distance. The way being fortunately clear of ice at the time, they succeeded in guiding both vessels into the only two coves out of twenty, examined by Parry in a small boat, of sufficient depth to float them at low water. These coves were formed by grounded masses of ice, and afforded but a precarious refuge, especially as it was now evident that the Fury would require to be thoroughly repaired before she could be considered seaworthy. Four pumps were at this time constantly engaged in the effort to keep her from sinking. In these coves, the slightest pressure from the outside ice would be sufficient to drive the ships ashore, as they had only about two feet of water under their keels. Parry and Hoppner bestirred themselves to seek a more secure anchorage, and had the good fortune to find, within a mile, another, but deeper cove, where three masses of grounded ice were so situated as to afford an ice-locked harbor. But notwithstanding their activity, heightened if possible, by the supreme urgency of the situation, before the ships could be moved, the ice, like a watchful enemy, closed in and again held them fast in his tightening grasp. A narrow lane of water affording a passage for boats between ships, some of the Fury's dry provisions were taken aboard the Hecla, and a quantity of heavy ironwork and other not easily injured stores were conveyed ashore. On the 5th of August they succeeded, during a temporary opening of the ice, in running the ships into the harbor already chosen, but were prevented from reaching the most desirable anchorage, and in twenty minutes after their arrival the ice again closed around them.

They now proceeded with the lightening of the Fury, and in three days had unloaded her so much that two pumps were sufficient to keep her free; spars, boats and everything from off her upper deck, as well as the provisions and stores, having been removed. These were temporarily housed under the ship's tents on shore; and at the same time preparations were diligently made to heave the Fury over on the ice for repairs. Meanwhile, on the 8th, a southward movement of the ice in Prince Regent Inlet, drove the outer ice of the harbor against and under the ships, threatening to keel over the Fury before they were ready, and driving the Hecla on a projecting tongue of ice attached to one of the icy piers of this rather dangerous harbor. On the 10th, by cutting four or five feet of ice at the stern of the Hecla, she slid off the tongue, and was once more entirely afloat. A little more room being soon obtained by one of the ever-recurring movements of the ice, they cleared the basin of the scattered masses of broken ice, piece by piece, leaving the ships a few feet to spare in length, but none in width. The Fury, on the inside of this harbor, had eighteen feet of water, and the Hecla, on the outside, twenty-four. The clearness of the water now enabled them to form an opinion of the injuries received by both vessels in their long-continued battle with the ice. They discovered that in the Fury "both the stern-post and forefoot were broken and turned up on one side with the pressure. We also could perceive, as far as we were able to see along the main keel, that it was much torn, and we had therefore much reason to conclude that the danger would altogether prove serious. We also discovered that several feet of the Hecla's false keel were torn away abreast of the forechains, in consequence of her grounding forward so frequently."

The Fury was completely cleared of everything on the 16th, and two unsuccessful attempts had been made to lay her down, when on the 19th the ice once more peremptorily decided against further action in that direction. A huge outside floe, driven southward by a gale, so pressed upon the harbor ice as to dislodge the ice piers and destroy the basin prepared with so much labor. Both ships were now in danger of being again forced aground by the next pressure from the un-

certain ice, and it was determined to save the Hecla from that disaster, by preparing her for sea. And, if time would permit, the Fury, too, should be towed out and staunched with sails until a more secure harbor could be reached. By the 21st they had placed aboard the Fury about fifty tons' weight of coal and provisions, and her anchors, cables, rudders and spars—all that was deemed absolutely necessary for her equipment, should they succeed in getting her out to sea. But the ice again came on and drove her ashore, the Hecla having barely escaped the same disaster by having gone out to sea one hour and five minutes before. At eight o'clock the last man had left the Fury, and at eleven half a mile of packed ice lay between her and her consort. In the morning the distance had increased to four or five miles, the Hecla having been borne south by the current, and during the ensuing night four or five leagues farther. The wind now changing, they were enabled to retrace their course, but could get no nearer to the Fury than twelve miles. This was at noon of the 24th, in latitude $72^{\circ} 34' 57''$, and on the morning of the 25th they were at least fifteen miles away, the ice having pressed between them and the shore where she lay.

Still hovering in her vicinity and watching every opportunity to reach her, Parry and Hoppner were finally enabled to make an examination into her condition. Getting within seven or eight miles of her, and a narrow channel opening the way for the boats, Parry and Hoppner got aboard the Fury for the last time, at half-past nine. It was reluctantly decided that her condition was hopeless in view of all the circumstances, and that it would only endanger the Hecla and the lives of both crews to waste any more time in attempting to rescue and repair her, with no secure harbor in view, even should they succeed in floating her off. She was therefore abandoned where she lay, in latitude $72^{\circ} 42' 30''$, and longitude $91^{\circ} 50' 5''$, about half a degree south of their late winter quarters, but on the opposite side of Prince Regent Inlet, and just above where the coast of North Somerset wears rapidly to the west.

They now proceeded to make both crews as comfortable as possible on the Hecla, and sailed across the inlet to Neill's Harbor, a little south of Port Bowen, to refit and get ready for the return voyage to England,

all further attempts to continue their explorations being necessarily abandoned. John Page, a seaman of the Fury, who had suffered for several months from a scrofulous disorder, now died, and was buried with the usual marks of respect. By the 31st all necessary arrangements, including a fresh supply of water, having been perfected, they sailed to the northward, gaining the open sea of Barrow's Strait on Sept. 1st. They found Baffin's Bay very different from what it was the preceding year, within four days of the same date. Where on the 9th of September, 1824, they experienced the utmost difficulty in escaping from the ice, on the 5th of September, 1825, and within thirty miles of the same spot, there was no floe whatever, and only one or two solitary icebergs. On the 7th, in latitude $72^{\circ} 30'$, and longitude $60^{\circ} 5'$, they first encountered ice, with thirty-nine icebergs in sight, but also with plenty of sea room to the east. Next day, in latitude $71^{\circ} 55'$, they fell in with three whalers going north, to whom they were able to give no encouragement, as they had not seen a single whale since they left Neill's Harbor. Their advance to the east was now much more retarded by contrary winds, and they did not pass the Arctic Circle until noon of the 17th, but for the ensuing week the winds were favorable. On the 25th and 26th they encountered a very severe gale, after leaving Davis' Strait, and while southeast of Cape Farewell. After the gale they had a week of remarkably fine weather, and though somewhat hindered afterward by strong southerly winds, they reached Mull Head, the northwestern point of the Orkney Islands, on the 10th of October. Two days later, encountering a southerly wind off Peterhead, Commander Parry went ashore at that point and set off for London, arriving at the admiralty on the 16th. The Hecla arrived at Sheerness on the Thames on the 20th, where Capt. Hoppner, his officers and men, being put on trial for the loss of the Fury, were honorably acquitted, the abandonment of the ship being amply justified.

CHAPTER XXXIV. .

ARCTIC VOYAGE OF SABINE AND. CLAVERING — HAMMERFEST— COD-FISHING—DISCOVERY OF PENDULUM ISLANDS—PROCEED TO CAPE PARRY—LIFE OF SABINE.

The main purpose of this voyage was to further the “pendulum experiments” of Captain, afterward Major General, Sir Edward Sabine, for the completion of which he obtained the use of the ship Griper of the royal navy, which had been one of Parry’s vessels in his first voyage in search of the Northwest Passage. She was now placed in command of Capt. Clavering, who in the intervals occupied by Sabine on land, made some few discoveries in Arctic seas. They sailed from the Nore on the 11th of May, 1823, and arrived at Hammerfest in *Qual Oe*, or Whale Island, on the northwest coast of Norway, $70^{\circ} 40' 7''$ by $23^{\circ} 35' 43''$, on the 4th of June. Here Sabine prosecuted his scientific experiments until the 23d, and leaving him thus engaged, the reader is invited to take a survey of Hammerfest, which is a town of much interest in connection with Arctic explorations.

Hammerfest is situated on the west coast of the island, and is the most northern town of its size in the world. Sixty years ago it had only forty-four inhabitants, but has now a settled population of about 1600. It is the capital of the province of Finmark, which has an area of over 18,000 square miles, and a population of only 24,000. The town comprises one long, winding street along the shore, the houses of which, made of wood and painted, present the striking peculiarity of having grass plots on the roofs. The warehouses are built on piles driven into the water, giving ready access to ships and boats, and, with the adjoining sheds, are usually well filled with skins of the reindeer, bear and wolf, reindeer horns, walrus tusks, dried fish and train oil. These the merchants obtain from the Finns—more properly Lapps—from whom the province de-

rives its name, in exchange for brandy, tobacco—of both of which the poor natives are very fond—hardware, and cloth. Some of the resident merchants fit out annual expeditions for walrus and seal-hunting at Cherry Island and the Spitzbergen group. The seal and walrus hunters of other nations also make it a place of outfit and point of departure for the northern seas. A large trade with Archangel, on the White Sea, in Russia, is also carried on. The vessels used in this traffic are peculiar, being supplied with three almost perpendicular masts, each furnished with a large three-cornered sail. By these are exchanged the train oil and fish of the Northern Norwegians for the rye, meal and candles of the Russians. A British ship occasionally puts into Hammerfest with a cargo of coal, and takes back one of codfish, which constitutes the most important single article in the commerce of the town.

Though so far north, the temperature is generally mild enough to permit the hardy fishermen to prosecute their labors through the fishing season. The number of cod annually taken is between twenty and fifty millions, a large part of which are taken by the Russians as caught. The remainder is prepared for the markets of the world and sold as dried codfish, Spain being the largest buyer, her annual purchases amounting to over forty million pounds. The winter is given to merry-making, and scarcely a night passes without a frolic of some sort. The day when the sun reappears, is one of general rejoicing, and everybody rushes into the street to congratulate his neighbor. The summer is short, and sometimes quite oppressive for a little while; but the cool air from the snow-covered hillsides and ravines, in some of which it always lies, and from the sea, soon reduces the temperature. The chief subject of regret is not that it is sometimes hot, but that it is cold so long. North Cape, the extreme northern point of Europe, is only sixty miles from Hammerfest, and is generally an object of great interest to sojourners or travelers in those regions. This rocky promontory, a thousand feet in height, abuts upon the sea, and is difficult of ascent even at its most accessible points in the rear. It is, however, frequently visited, and no doubt amply repays the labor to persons who like to dream of the sublime, away from the busy haunts of men.

By leaving Haze Harbor and North Cape, it is our duty to return to Captains Sabine and Clavering, and their "good ship" the Gorda, which we left for Spitzbergen ~~was~~ on the 23d of June. They encountered ice in latitude $73^{\circ} 5'$ off Cherry Island on the 27th, and three days later reached the vicinity of Halden Headland, the northwestern point of the Spitzbergen Archipelago. On one of the smaller group of islands known as the Seven Sisters, they landed Capt. Sabine with his necessary equipments, and immediate attendants, while Capt. Clavering continued his course to the north. But having made about thirty miles in that direction, he was driven back by the impassable ice-pack. Sabine was again ready on the 24th of July, when they set sail for the east coast of Greenland, which they struck at a headland named by them Cape Borlase Warren. Here they discovered two islands which received the name of Pendulum Islands, because Sabine chose them as the field of his experiments. Clavering proceeding northward, discovered and named Shannon Island in latitude $75^{\circ} 12'$; and descried land as high as latitude 76° . They discovered Ardencaple Inlet, the coast-line of which they estimated at about fifty miles. The latter half of August was spent ashore by Clavering and nineteen others of his ship's company.

The temperature was much milder than anticipated, falling at no time lower than 23° above zero. At a short distance inland, a circle of mountains almost surrounds this bay, rising at some points to a height of four to five thousand feet. They met a small tribe of twelve Esquimaux, with whom, however, they had but little intercourse. On the 29th of August they returned to the ship, and on the last day of the month, having taken aboard Capt. Sabine and his party, they proceeded southward along the coast to Cape Parry, in latitude $72^{\circ} 22'$, longitude $22^{\circ} 2'$. The cliffs were here observed to be also several thousand feet high. Finding the coast-ice likely to prove troublesome, if not dangerous, they determined to return homeward. Leaving the coast on the 13th of September they were driven southward in a gale, but succeeded in crossing the Atlantic in safety, reaching Christiansend on the first of October. Here the ship struck a rock, but was got off at high water without serious injury. Coasting to the northeast they arrived at Drontheim or

Trondhjem, on the 6th, when Sabine resumed his pendulum experiments.

Drontheim or Trondhjem (Tronyem), the capital of the old monarchy and center of Norwegian literature, is situated in $63^{\circ} 25'$ by $10^{\circ} 23'$ east. The city looks as if it were only of yesterday, as its wooden houses have been frequently destroyed by fire and as often rebuilt of the same material. It presents a pleasing appearance, the houses being painted in a variety of colors; and is a thriving place, with about 23,000 inhabitants. Its prosperity is mainly due to the fisheries and the iron and copper mines in its vicinity. The lofty chimneys of its furnaces and foundries afford a cheering evidence that modern industry with its incessant activities, has found its way to the ancient seat of the skalds. The bay, on the peninsula of which it stands, is remarkable for its beauty, and is dotted with numerous shipping. On its banks are the villas of its wealthy merchants, and on a small island is the fortress or stronghold of Munkholm, facing the city, which is further graced by a magnificent cathedral of the eleventh century, the most venerable ecclesiastical structure in the kingdom. Ship-building is carried on to a considerable extent, and the vessels there constructed rank high for sailing qualities. The inner harbor is rather shallow, not admitting vessels which draw more than ten or twelve feet of water.

Edward Sabine, the naturalist of several Arctic expeditions, is worthy of more than passing mention. He was born in 1788, and entered the military service at an early age. Having attained the rank of lieutenant he was commissioned to accompany Sir John Ross and Sir Edward Parry on their first voyages in search of the Northwest Passage, in 1819-20, respectively. On his return from the latter he communicated the results of his magnetic observations to the Royal Society, and became so much interested in that and kindred topics of scientific investigation that he devoted his whole time to the prosecution of researches and experiments. In 1821 he began a series of voyages to several points between the Equator and the Pole, of which the one now under consideration formed the last, making at each place visited a careful set of observations on the length of the seconds' pendulum—hence called pendulum experi-

ments—on the intensity of terrestrial magnetism, the dip of the magnetic needle, and related subjects. The results were published by him in 1825, in a work entitled “The Pendulum and Other Experiments,” and were regarded as highly valuable. With one brief episode belonging to his military profession, during which he served in Ireland, his history is that of a student and observer of the laws and phenomena of nature, especially in the department of terrestrial magnetism. His labors have led to the discovery of the laws of magnetic storms, the connection between sun-spots and certain magnetic phenomena, and the magnetic influence of the sun and moon on the earth. To his efforts have been largely due the establishment of magnetic observatories all over the world, and the collation of the most important facts thus obtained. He filled the several offices of secretary, vice-president and president of the Royal Society, and was successively promoted in his profession to captain, major, and finally, in 1856, to major-general. In 1869 he was created Knight Commander of the Bath, whence his title, Sir Edward Sabine.

Sabine having prosecuted his scientific observations for several weeks at Drontheim, the Griper set sail for England and arrived safely at Deptford, near London, on the 19th of December, 1823.



CHAPTER XXXV.

LYON'S ARCTIC VOYAGE — ROWE'S WELCOME -- LYON'S PRAYER FOR HELP—SAFETY—RETURN TO ENGLAND.

Notwithstanding the poor sailing qualities of the Griper, she was soon again put to use for purposes of exploration in the Northwest, being placed in charge of Capt. George Francis Lyon, who had accompanied Parry in one of his Northwest voyages. With forty-one officers and men, Lyon set sail June 20, 1824, with instructions to complete the survey or exploration of Melville Peninsula. He was to make for Wager River off Rowe's Welcome, whence he was to cross the peninsula and attempt to reach Franklin's Point Turnagain. He was accompanied by a small vessel named the Snap, with extra stores, which were transferred to the Griper as soon as they met the ice in Hudson's Strait, and the tender sent back. This was successfully done, but the Griper having taken aboard the extra load, made slow progress, which, added to the lateness of their departure from England, rendered failure almost inevitable from the outset. It was the end of August before they were able to reach Rowe's Welcome, which they entered from Hudson's Bay. Here they encountered storms and fogs, while no trust could be placed in the compass, and the destruction of the ship became imminent. They were obliged to bring her to "with three bowers and a stream anchor in succession," while she was all the time pitching her bows under. The danger grew so menacing, that they loaded the boats with provisions and supplies, fearing they would have to take to them any moment. Two of them were almost sure to be destroyed as soon as lowered, and lots were cast, mainly to insure the safety of such as should have the good fortune to draw the most reliable of the boats, the unsuccessful ones accepting their fate with the magnanimity of true heroes. Heavy seas swept the decks, and they were approaching a low beach,

"where no human power," says Lyon, "could save us if driven upon it," when the fog opportunely lifting, showed them the danger. But they were soon face to face with another. A great wave lifted the vessel bodily, taking her apparently along the whole length of her keel, and her breaking-up was momentarily looked for, but their alarm fortunately proved groundless.

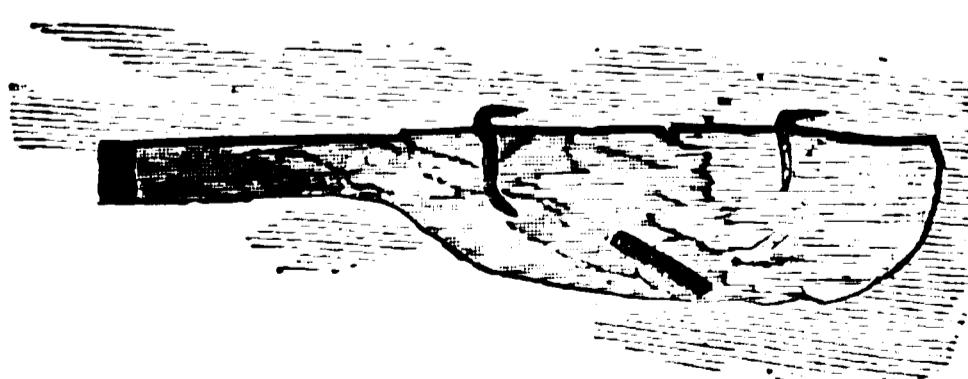
"And now that everything in our power had been done," says Lyon, "I called all hands aft, and to a merciful God offered prayers for our preservation. I thanked every one for their excellent conduct, and cautioned them, as we should in all probability soon appear before our Maker, to enter His presence as men, resigned to their fate. We then all sat down in groups, and sheltered from the wash of the sea by whatever we could find, many of us endeavored to obtain a little sleep." They had been three nights without any, and exhausted nature will snatch repose, even when in the very jaws of death. "Never perhaps," continues Lyon, "was witnessed a finer scene than on the deck of my little ship, when all hope of life had left us. Noble as the character of the British sailor is always allowed to be in cases of danger, yet I did not believe it to be possible, that among forty-one persons not one repining word should have been uttered. The officers sat about wherever they could find shelter from the sea, and the men lay down conversing with each other with the most perfect calmness. Each was at peace with his neighbor and all the world; and I am firmly persuaded that the resignation which was then shown to the will of the Almighty, was the means of obtaining His mercy. God was merciful to us; and the tide almost miraculously fell no lower." The "three bowers and stream anchor," or some of them, had held the ship, and when the weather cleared they found themselves in a bight of Rowe's Welcome, which they gratefully named the Bay of God's Mercy.

On the 12th of September they reached the mouth of Wager River, where they encountered a second terrific gale, in which the Griper could make no headway, but "remained actually pitching fore-
castle under, with scarcely steerage way." She was brought to by casting her anchors, which fortunately held, while thick falling sleet cov-

ered the deck to a depth of several inches. The spray froze as it fell on the deck; the night was one of pitchy darkness; and to add to the danger, several ice streams drove down upon the ship. Great seas washed over them at short intervals, and their wet clothes were frozen stiff, while they held to the ropes which were stretched across the deck to keep them from being washed overboard. As the morning dawned the danger became appalling, for all the cables gave way, and the ship was lying on her broadside. But each man did his duty, and the captain's experience in northern latitudes, combined with the fertility of resource learned in the school of Parry, thus reinforced, triumphed over the dangers of the deep, and they were saved.

When the storm had abated, after its two days' fury, Lyon held a consultation with his officers, and it was wisely determined to return to England. The season was almost spent; the Griper was without anchors, and at the best was not adapted for battling with the ice, as Parry had ascertained five years before. Nothing had been achieved, but the heroism and courage of officers and men received, as they richly deserved, the highest praise. They did not winter in Repulse Bay, as predetermined, Rowe's Welcome having proved sufficiently repulsive in the early autumn.

Lyon survived his return only eight years, dying at the early age of thirty-seven. His contribution to Arctic exploration was not noteworthy, but the saving of his men and ship under such difficulties, leaves no room to doubt that under more favorable circumstances he would have achieved success, and is a notable illustration of the great value of perfect discipline in all such expeditions.

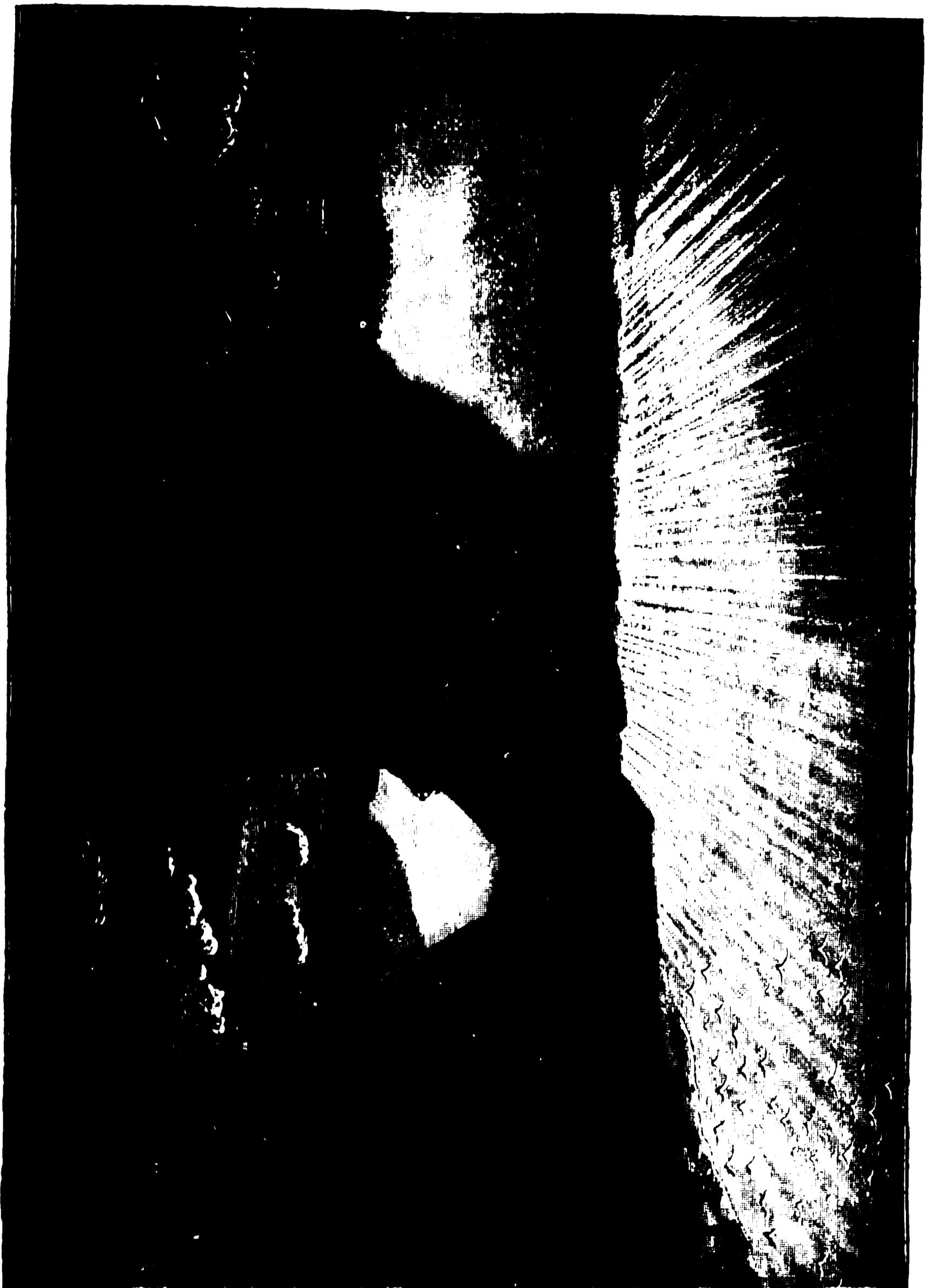


CHAPTER XXXVI.

BEECHEY'S ARCTIC VOYAGE—SAIL FROM SPITHEAD—KOTZEBUE SOUND
—REMARKABLE PHENOMENA—RETURN REEF — JOURNEY HOME-
WARD.

William Frederick Beechey (1796-1856) had accompanied Franklin in 1818, and Parry in 1819, and was now, in 1825, deemed a suitable commander for an expedition to the Arctic Ocean, the main purpose of which was to carry succor to both those celebrated explorers, then engaged, as previously related, in pushing their discoveries in North America, by sea and land. It had occurred to the home authorities that if the expeditions of Parry and Franklin had proved successful in reaching their respective destinations, and prosecuting their intended researches, their stores would be exhausted, or at least need replenishing, by the time they reached the prearranged rendezvous at Chamisso Island, in Kotzebue Sound. Franklin, in any event, would need transportation home, in a way that would obviate the exposure and hardship of simply retracing his overland journey. Beechey, therefore, was intrusted with the command of the ship-of-war Blossom, of twenty-six guns, but carrying for this voyage only sixteen. A large boat or barge, decked and rigged as a schooner, was added, to be used as a tender, and in narrow or shallow water where the large vessel could not venture. His instructions were to survey the islands or coast of the North Pacific, if time would permit, but to use every effort to reach Chamisso Island before July 10, 1826. Should he find on his arrival there that Franklin had not reached it before him, he was to proceed north and east to and beyond Icy Cape, in the hope of falling in with him somewhere along the coast of North America, west of the MacKenzie River. He was not to return through Behring's Strait until the end of October, in the event of not meeting Franklin; and was to renew the effort in the summer of 1827, after spending the winter in some more southern latitude.

NATURAL ARCH IN ARCTIC REGIONS.



The Blossom sailed from Spithead on the 19th of May, 1825; but the earlier incidents of the voyage do not come within the scope of this work. On the 2d of June, 1826, she left the Sandwich Islands, and on the 27th was becalmed within six miles of Petropaulovsky, in Kamchatka, which, however, was reached on the next day. Here they fell in with the Russian ship-of-war Modeste, commanded by Capt. Wrangell of Arctic sledge-journey fame. Here Beechey learned of Parry's return to England, which reduced his mission to the single object of meeting Franklin, it being already too late to spend any time in exploring the islands of the North Pacific. Here they had the opportunity of seeing the active volcano of Avatcha emitting huge, dark volumes of smoke, and from the black spots seen on the snow, they judged that there had been a quite recent eruption. This peak is about 11,000 feet high, but farther inland, towers above it the Streloshnaia Sopka, 3,000 feet higher still; and the peninsula of Kamchatka has no less than twenty-eight active volcanoes, besides many that are extinct. Many of the peaks of this Alpine chain which traverses the whole length of the peninsula are of the height indicated, and some as high as 16,500 feet, presenting a beautiful panorama of lofty, fantastic, snow-covered peaks of various outlines, interspersed with volcanic cones emitting their dark columns of smoke, like huge banners floating their waving folds high in air.

Beechey left Petropaulovsky July 1st, but did not get clear of the Bay of Avatcha until the 5th, when he proceeded north for Behring's Strait. "We approached," says Beechey, "the strait which separates the two great continents of Asia and America, on one of those beautiful still nights well known to all who have visited the Arctic regions, when the sky is without a cloud, and when the midnight sun, scarcely his own diameter below the horizon, tinges with a bright hue all the northern circle. Our ship, propelled by an increasing breeze, glided rapidly along a smooth sea, startling from her path flocks of aquatic birds, whose flight in the deep silence of the scene, could be traced by the ear a great distance." Approaching the American shore just beyond Cape Prince of Wales, they were visited by some Esquimaux from a small neighboring island, who were as usual quite noisy and energetic as well as good-

humored and cheerful in their eagerness to exchange their various little commodities for the trinkets, beads and knives with which their visitors had supplied themselves before leaving England. On the 22d of July they anchored in Kotzebue Sound, and explored a deep bay on its northern shore, which they named Hotham Inlet. Three days later they arrived at Chamisso Island, and not finding Franklin, they set sail for the Icy Cape on the 30th, dispatching the barge with instructions to keep close to the shore to watch for Franklin's overland party. The Blossom doubled Cape Krusenstern and surveyed the coast to the north and east, successively passing Cape Thomson, Hope Point, Cape Lisburne, Cape Beaufort and the Icy Cape—Captain Cook's "limit." Dreading the closing in of the ice ahead, they now sent forward the barge under Messrs. Elson and Smyth, and returned with the Blossom to Chamisso Island.

While on this return voyage on the night of the 25th of August, they saw an aurora borealis, which Beechey thus describes: "It first appeared in an arch extending from west-by-north to northeast; but the arch shortly after its first appearance broke up and entirely disappeared. Soon after this, however, a new display began in the direction of the western foot of the first arch, preceded by a bright flame, from which emanated coruscations of a pale straw-color. Another simultaneous movement occurred at both extremities of the arch, until a complete segment was formed of wavering perpendicular radii. As soon as the arch was complete, the light became greatly increased, and the prismatic colors, which had before been faint, now shone forth in a brilliant manner. The strongest colors, which were also the outside ones, were pink and green, on the green side purple and pink, all of which were as imperceptibly blended as in the rainbow. The green was the color nearest the zenith. This magnificent display lasted a few minutes; and the light had nearly vanished, when the northeast quarter sent forth a vigorous display, and nearly at the same time a corresponding coruscation emanated from the opposite extremity. The western foot of the arch then disengaged itself from the horizon, crooked to the northward, and the whole retired to the northeast quarter, where a bright spot blazed for a moment, and all was darkness. There was no noise audible during any part of our ob-

servations, nor were the compasses perceptibly affected." They arrived at their immediate destination two days later.

Meanwhile the barge, which had set forward on the 17th, made its way slowly along the shore, Elson landing at intervals to erect posts and deposit instructions for Franklin. On the 22d an effective bar to their further progress was presented by the long spit of land, the head of which Beechey afterward named Point Barrow. The ice here closed in to the shore, and was seen extending to the north, as far as the eye could reach, without an opening. Back of this point they now proposed to erect the last guide-post for Franklin, but were prevented by the hostile demonstrations of some Esquimaux. It was afterward ascertained that they had reached within one hundred and forty-six miles of Return Reef, whence Franklin had set out on the 18th, to return to MacKenzie River, abandoning the hope of meeting Beechey. Considering the immense distance traversed by both—constituting in fact a circuit of the globe—the wonder is that they should come so near meeting, not that they should fail to make an actual connection. The barge having been driven ashore by the ice, and the natives showing an unfriendly spirit, Elson and his seven companions determined to set out on their return. Their alarm at the threatening attitude of the Esquimaux and the urgency of their need, stimulated their exertions, and they succeeded in floating the barge. They now hastened to return, but after proceeding some distance, they found their way blocked by the ice. Around a jutting point which they named Cape Smith, they were obliged to haul the barge through a narrow lane, with the ice-floe momentarily threatening to close in, and cut off their retreat. They, however, succeeded in reaching Chamisso Island in safety on the 9th of September, after an absence in all of forty-one days, and twenty-three from the Blossom.

The Esquimaux who visited Beechey on the island, exhibited their ingenuity by drawing a chart of the coast on the sand. The coast-line was first marked out with a stick, and the distances regulated by days' journeys. The hills and mountains were shown by little mounds of sand of varying heights, and the islands by collections of pebbles of proportionate dimensions. They were much surprised when Capt. Beechey

changed the position of one of the Diomede Islands, but soon came to recognize the correctness of the new location when they looked at it from another point of view. Their wonder was none the less that the stranger could set them right. They then proceeded to designate the location of the Esquimaux villages and fishing stations by bundles of sticks placed upright; and altogether, the "map" elicited the admiration of the visitors.

It was now necessary to move south to avoid the danger of getting frozen in, as also, because their provisions were running low, and it was determined by a council of officers that, though the prescribed period of their stay—the end of October—had not arrived, it was their duty to depart. A barrel of flour and some other supplies were secretly buried for the use of Franklin, should he reach the island, and the usual bottle inclosing instructions, was placed at the foot of a post or flag-staff. They accordingly set sail for Behring's Strait, and after a winter's cruise to California, the Sandwich Islands, the Bouin Islands, the Loo-Chow Islands and others, they returned to Chamisso Island on the 5th of July, 1827, where they found the deposits of the previous year untouched.

The barge was got in readiness and dispatched to the northward under Lieut. Belcher, and the ship soon followed. It was hoped they could extend the survey beyond the point reached by Elson, and perhaps obtain tidings of Franklin. They found the posts and bottles as they had been left, and the state of the ice and weather more unfavorable than before, and returned before arriving at Icy Cape. On the 9th of September the Blossom got aground on a sandbar off Hotham Inlet, but came off at high water without injury, and arrived at Chamisso on the 10th. Not finding the barge as expected, they carefully scanned the coast in all directions, when they noticed a flag of distress flying from a peninsula of the sound. Hastening to the rescue, they learned that the barge had been wrecked and three of the men lost, and took the survivors aboard. On the 29th, an unfortunate collision with the natives resulted in the wounding of seven of the English, and the killing of one of the Esquimaux. In a thorough survey of the island they discovered two harbors named by Beechey Port Clarence and Grantley Harbor.

Leaving the customary deposits for the guidance of Franklin, not knowing that he was already safe in England, they finally took their departure from the Polar Sea on the 6th of October, 1827, narrowly escaping disaster from breakers, on which they were unexpectedly driven by the wind. On the 29th they were off the coast of California, and proceeding southward, they touched successively at Monterey and San Blas, in Mexico, and arrived at Valparaiso, Chili, on the 29th of April, 1828. On the last day of June they crossed the meridian of Cape Horn in a snowstorm; and arrived at Rio de Janeiro July 21st, where they remained until the 24th of August. Leaving the coast of Brazil, they arrived at Spithead on the 12th of October, after an absence of three years and five months, less seven days. They now learned that Franklin had reached home more than twelve months before.



CHAPTER XXXVII.

PARRY IN SEARCH OF THE POLE—PLAN FOR SLEDGE JOURNEYS—REINDEER TRAVEL—GRAVES DISCOVERED—MUSSEL BAY—FINE WEATHER—THE “ENTERPRISE” AND “ENDEAVOR”—REINDEER ABANDONED—ARRIVE AT HECLA COVE—RELIEF—THE CHARACTER OF POLAR ICE.

Sir Edward Parry conceived the idea of reaching the North Pole by a combination of sledge and boat travel, alternately, over the ice and water lanes from such points as he should find impassable to his ship. As early as the month of April, 1826, he communicated this design to the first Lord of the Admiralty. Being submitted to the Royal Society, and receiving its approval, orders were given for its execution, which was intrusted to its author, his commission dating Nov. 11, 1826. His old ship, the Hecla, was to convey the expedition to the Spitzbergen Seas; and two boats were constructed for the more northern trip, on a specific plan, under the superintendence of the great navigator. They were twenty feet long and seven wide, “having great flatness of floor, with the extreme breadth carried well forward and aft, and possessing the utmost buoyancy, as well as capacity for stowage.” The wood frame was of the lightest and best material, and was covered with Macintosh’s water-proof canvas, tarred on the outside. Over this, fir plank only three-sixteenths of an inch thick, then a sheet of felt, and finally oak plank of the same thickness as the fir, were firmly fastened with screws from without. On each side of the keel, and projecting considerably below it, was attached a strong runner, shod with smooth steel, for ice travel. Two wheels, five feet in diameter, with a smaller swivel wheel aft, were also attached, but afterward rejected as unserviceable. There were also provided ropes and collars whereby the men could, without waste of time, attach themselves to the boat to drag it over the ice or

through water lanes, when necessary. A locker at each end afforded storage for instruments and some stores, and a slight framework along the side would hold bags of biscuit, pemmican, and clothing. A bamboo mast nineteen feet long, a tanned duck sail, answering also the purpose of an awning, one boat hook, fourteen paddles, one for each of the boat's crew, and one steer-oar, completed the equipment. To each boat were assigned two officers, and two sledges, weighing each twenty-six pounds. The aggregate weight of a boat, with its supplies and equipment, was 3753 pounds, or 268 pounds to every one of the crew.



SLEIGH DRAWN BY SINGLE REINDEER.

All things being in readiness, the *Hecla* was towed down the Thames March 25, 1827, and on the 4th of April left the Nore. With favorable winds they were off Hammerfest on the 17th, and reached its harbor early in the morning of the 19th, where they remained ten days. While Parry, assisted by Lieut. Foster, prosecuted magnetic and other scientific observations, Lieut. Crozier was dispatched to Alten, sixty miles away, to procure the eight reindeer necessary for the sledges. "Nothing can be more beautiful," says Parry, "than the training of the Lapland reindeer. With a simple collar of skin round his neck, a single trace of the same material attached to the sledge and passing between his legs, and one rein fastened like a halter about his neck, this intelligent and docile

animal is perfectly under the command of an experienced driver, and performs astonishing journeys over the softest snow. When the rein is thrown over on the off side of the animal, he immediately sets off at a full trot, and stops short the instant it is thrown back to the near side. Shaking the rein over his back, is the only whip that is required. In a short time after setting off they appear to be gasping for breath, as if quite exhausted; but, if not driven too fast at first, they soon recover, and then go on without difficulty. The quantity of clean moss considered requisite for each deer per day, is four pounds; but they will go five or six days without provender, and not suffer materially. As long as they can pick up snow as they go along, which they like to eat quite clean, they require no water; and ice is to them a comfortable bed."

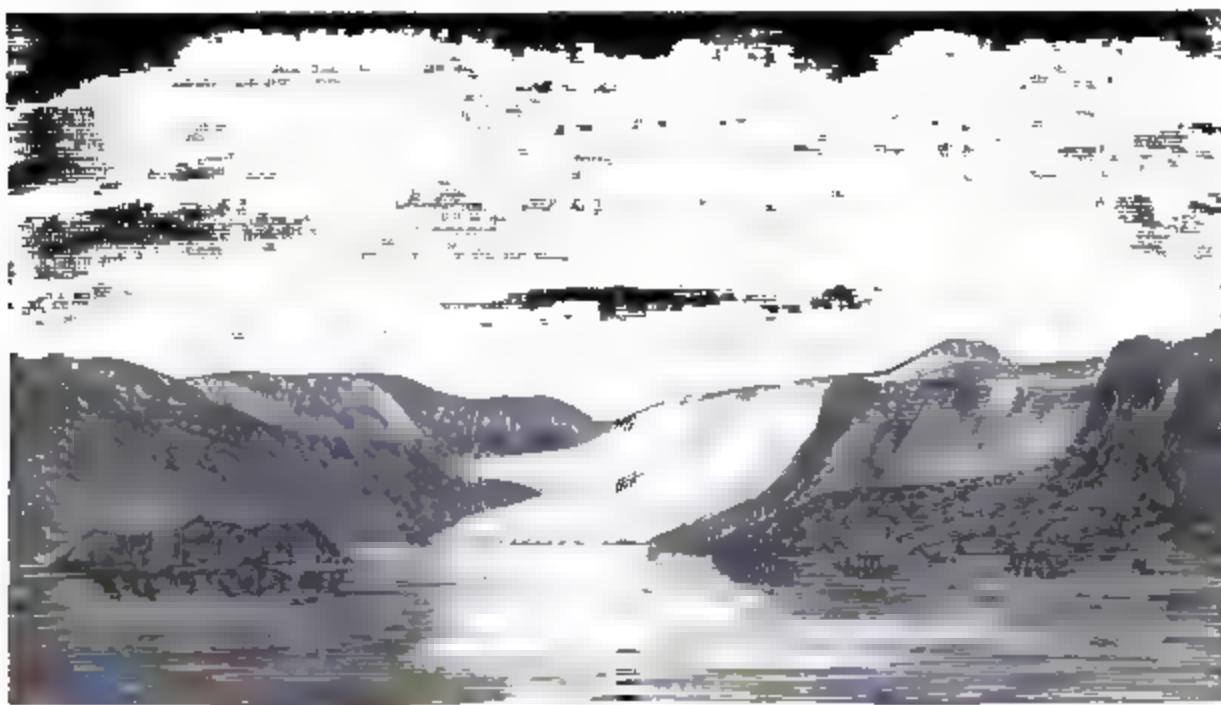
Having procured the reindeer, and some supplementary Arctic equipments, they set sail on the 29th of April. On the 5th of May, in $73^{\circ} 30'$ by $7^{\circ} 28'$ east, they met loose ice; and 110 miles further to the north-northwest, in $74^{\circ} 55'$, by a few miles east of the meridian of Greenwich, on the morning of the 7th, they encountered a continuous ice stream. On the 10th they fell in with whalers, who were endeavoring to push to the north to latitude 78° , south of which they never expected to catch whales. The Hecla, accompanied by the whalers, made fifty miles to northward during the night, sometimes "boring" through with difficulty. On the 14th, passing Magdalena Bay, they arrived off Hakluyt Headland, and worked to the southeast to reach Smerenburg Harbor, which they found completely frozen in. Walruses, dovekeys and eider-ducks were seen in great numbers, and four wild reindeer came near the ship on the ice. They now endeavored to make a deposit of provisions on the Headland, but were driven off by a high wind, which put the ship almost on her beam ends. As the safer alternative they drove the ship through the ice, and at four in the morning of the 15th found themselves in a perfectly secure situation, half a mile within the ice pack. On the 22d Lieut. James C. Ross, with a party of officers and men, effected a landing over the ice, and found on a hillock two graves with the dates 1741 and 1762, and a considerable quantity of fir driftwood, but no harbor for the ship.

On the 27th an attempt was made to proceed northward with the

sledge-boats on the ice, which around the ship resembled a stone-mason's yard, with the difference that the blocks were ten times the usual dimensions. The trial was made, but soon abandoned as utterly impracticable, because of the high and sharp angular masses of ice that constituted the "stone-mason's yard." On the 29th and 30th the greater part of the ship's company, under Lieuts. Foster and Crozier, were laboriously occupied in transporting a boat load of provisions over the ice to Red Beach, six miles distant. On the 1st of June Parry was about to make a second attempt to proceed to the north, when the Hecla began to move to the east with the floe in which she was embedded, and continued to drift until the 6th, when she reached Mussel Bay, where Parry, with some officers and men, landed to make a small deposit of provisions, and seek a harbor for the ship, but failed in the latter object. The drifting continued until the evening of the 8th, when, under the influence of a southerly wind, they finally got clear of the ice after a detention of twenty-four days.

"I do not remember," says Parry, "to have experienced in these regions such a continuance of beautiful weather as we now had, during more than three weeks that we had been on the northern coast of Spitzbergen. Day after day we had a clear and cloudless sky, scarcely any wind, and with the exception of a few days previous to the 23d of May, a warm temperature in the shade, and quite a scorching sun. On the 3d of June we had a shower of rain, and on the 6th it rained pretty hard for two or three hours." But now the weather was thick and so continued until the 10th, when under a west-southeast wind it cleared, and they made for Brandywine Bay, with the islands Low and Walden in sight, but found every cove and harbor blocked with shore-ice, extending in some places six or seven miles from land. Pushing northward to $80^{\circ} 43' 32''$, the Seven Islands were seen to the east, and Lord Mulgrave's Little-Table Island, nine or ten miles to the east-northeast. This is a mere crag, rising about 400 feet above sea-level, with a low islet off its northern extremity. "This island," says Parry, "being the northernmost known land in the world, naturally excited much of our curiosity; and bleak, and barren, and rugged as it is, one could not help gazing at it

with intense interest." At midnight on the 14th they were at $81^{\circ} 5' 32''$ by $19^{\circ} 34'$ east, with nothing visible to the north, but loose drift-ice. Doubling back they tried to find a harbor on Walden Island, but failed, leaving, however, a small deposit of provisions; then, on Little-Table Island, where they also failed to find an open harbor, but left some provisions on one of the islets. Now sailing south they found on the 20th, a secure refuge for the Hecla in Treurenburg Bay, near Verlegen Hook—both so named by the Dutch—and named it Hecla Cove, in latitude $79^{\circ} 55'$ and longitude $16^{\circ} 49'$ east.



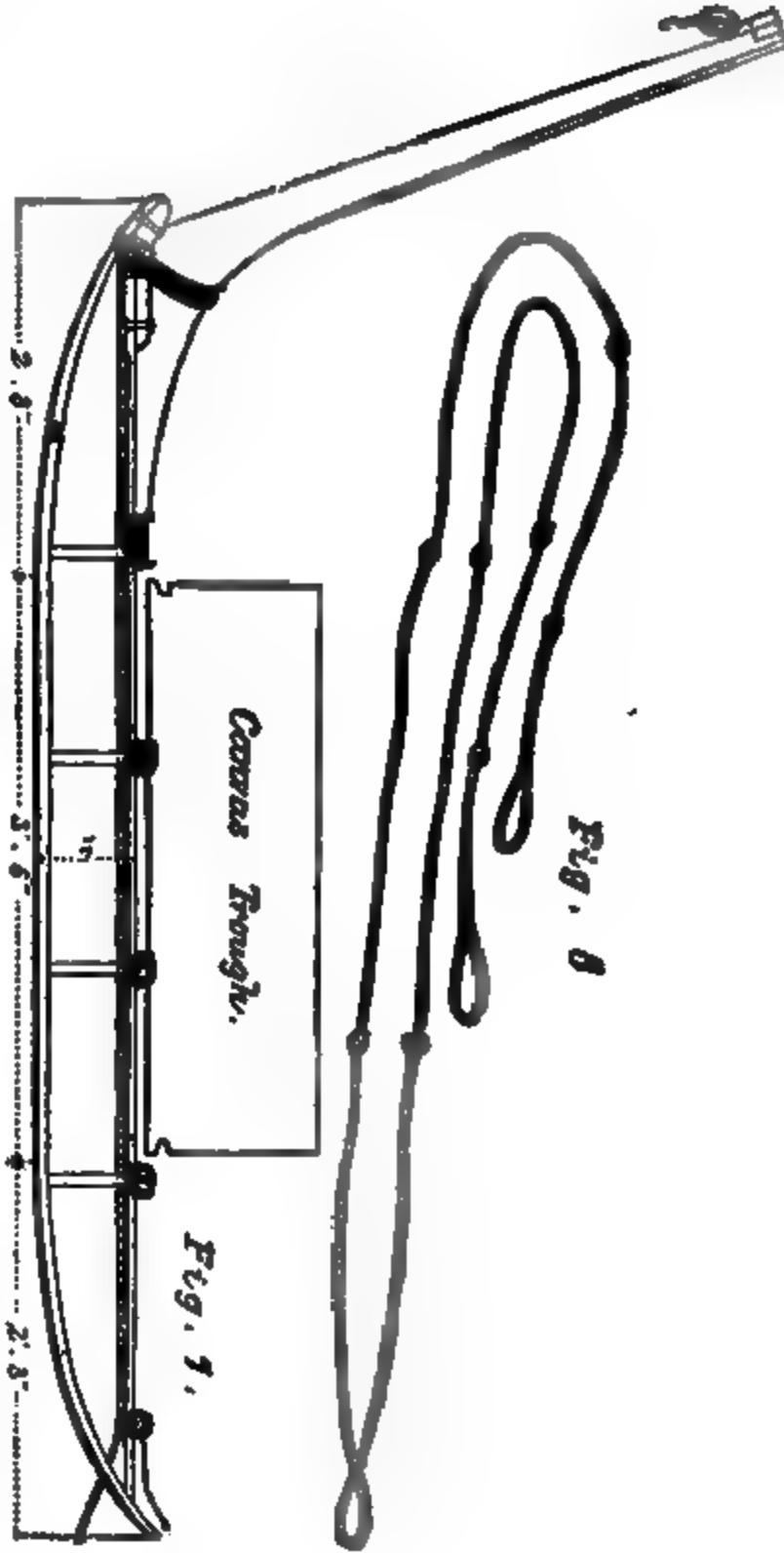
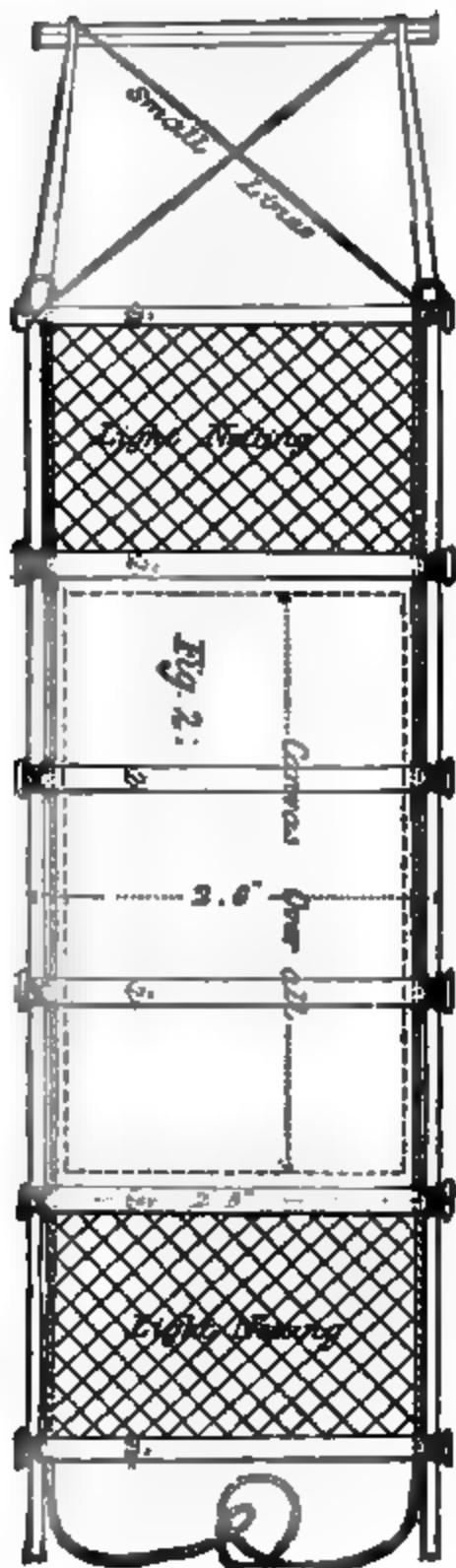
MURKIN BAY.

Leaving the vessel in charge of Lieut. Foster, Parry now set out with his two boats, which he named the "Enterprise" and "Endeavor," himself in command of the one, with Mr. Beverly as companion, and Lieutenant Ross in command of the other, with Mr. Bird as companion. Lieutenant Crozier in one of the Hecla's boats, accompanied the party to Walden Island with part of their provisions, together with some to be deposited on Low Island. Foster was to make a similar deposit near Hecla Cove, to meet the contingency of finding it necessary to get away with the ships, and to leave one of the ship's boats on Walden Island for the use of Parry and his party, in the event of their being compelled to return without their own. All possible provision

having been thus made in advance, the exploring party set out on the afternoon of the 21st, and took their final departure for the North Pole from their most northern depot on the islet already mentioned on the night of the 23d, at half-past ten o'clock, reaching by midnight the latitude of $80^{\circ} 51' 13''$. Thus it had taken eighty days at sea, besides six months of preparation, before they could get fairly started for the Pole, which helps to show that, if that point can ever be reached, the starting point must be as far north as possible. By noon of the next day, at $81^{\circ} 12' 51''$, they were stopped by the ice and made their first portage. To avoid as much as possible the discomfort of "snow blindness," they traveled by night and rested by day, that is, while the sun was lowest and highest, respectively, for they had constant daylight. The daily allowance of provisions for each man was as follows: Biscuit, ten ounces; pemmican, nine; sweetened cocoa powder, one—sufficient to make one pint; rum, one gill; and tobacco, three ounces a week. The fuel was spirits of wine—two pints a day for the whole company.

From the nature of the ice encountered, they had given up the idea of using the reindeer; and so the men did the hauling, while the officers acted as scouts or pioneers. It required an enthusiasm little short of fanaticism or insanity to struggle as they did for the thirty-three days they spent in reaching their utmost limit— $82^{\circ} 45'$. Arriving at a lane of water, they launched their boats and paddled across to the margin of the floe. Landing slowly and carefully—for the ice was usually weak at the edge—they hauled them across the ridges and hummocks, and rough ice, until they got to another lane. This process was usually repeated several times a day, and was so slow as well as laborious, that at one stage of their progress they made only eight miles in five days. On the 22d of July they made their best run of seventeen miles, and on the 23d had reached the limit already mentioned— $82^{\circ} 45'$. They continued their efforts for three days longer, but the wind having unfortunately veered to the north, the floe was found to be drifting south faster than they could advance in the contrary direction. At noon on the 26th they ascertained that they were three miles south of the point reached at midnight of the 22d. It was clearly useless to prosecute the attempt farther.

PLAN OF ARCTIC SLEDGE.



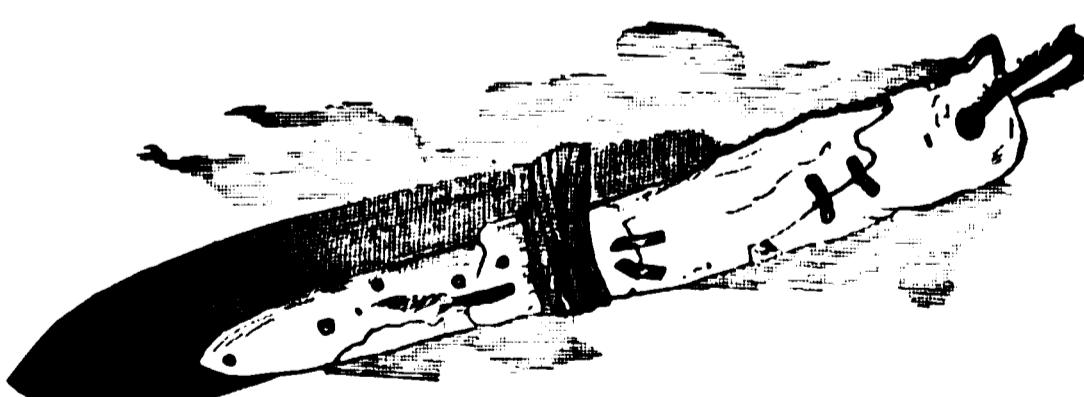
Even the energy and enthusiasm, the "enterprise and endeavor," of Parry and his men, could not but succumb to such an untoward obstruction. Though zealous to fanaticism in pursuit of the object of their ambition, neither commander nor men were without sterling common sense. The task was hopeless; and their duty was now to return. They were only 172 miles from Hecla Cove, in a northwest direction. "To accomplish this distance," says Parry, "we had traversed, by our reckoning, 292 miles, of which about 100 were performed by water, previous to our entering the ice. As we traveled by far the greater part of our distance on the ice, three, and not infrequently five times over, we may safely multiply the length of the road by two and a half; so that our whole distance on a very moderate calculation, amounted to 580 geographical, or 668 statute miles, being nearly sufficient to have reached the Pole in a direct line." Among the drawbacks of the season it was noticed that there had been "more rain than during the whole of seven previous summers taken together, though passed in latitudes from 70 to 15° lower than this."

Devoting a whole day to rest, they set out to return to the ship at half-past four in the afternoon of July 27th, and arrived at Hecla Cove August 21st, the drift materially facilitating their southward progress. For instance, on the 30th, though they had traveled but seven miles, they found themselves twelve and a half miles farther south than on the preceding day; and on the 31st, though in eleven and a half hours they had made only two and a half miles, the traveling being very laborious, they had with the help of the drift, moved south four miles more. Even when the wind again changed to the south, it did not entirely cut off, though it sensibly lessened, the gain by the drift. This help, however, in nowise lessened the labor and fatigue of the journey, only to the extent of shortening its duration. Every mile of the way actually made by the travelers was won in the same slow and distressing manner as on the outward trip, by alternate paddling in the water and dragging over the ice. The constant wet and cold had also affected several of the men with chilblains, and the tediousness as well as fatigue of the weary journey had begun to tell on their strength and energy.

The killing of a bear by Lieut. Ross on the 24th, procured them a beneficial and much appreciated change of diet, though, as usual in such cases, they suffered somewhat from a too free use of the fresh meat. On this trip they observed the phenomenon of red snow, described in a preceding chapter. Finally, on the morning of the 12th, they reached their depot off Little Table Island, where they found that the bears had devoured all the bread, but Lieut. Crozier had recently deposited some anti-scorbutics and delicacies, which proved very seasonable, as symptoms of scurvy had begun to appear in some of the men; and also an account by Lieut. Foster of what had occurred at Hecla Cove to July 23d. From this it was learned that the Hecla had been driven ashore by the ice on the 7th of July, but had been got off by the exertions of officers and men without having sustained any injury. Taking the remaining stores aboard, they next proceeded to Walden Island, where they landed, after having "been fifty-six hours without rest, and forty-eight at work in the boats"—their first repose on land for fifty-two days. A blazing fire of driftwood, a hot, abundant supper, and a few hours' quiet rest, soon restored them. Securing the extra boat and provisions that had been left on the island, they had hopes of soon rejoining the ship, but adverse winds and bad weather so delayed them, that it took a week to make what had cost them but a day on the outgoing trip. Arriving finally on board the Hecla after an absence of sixty-one days, they justly felt assured that if perseverance and energy could have won success, they would certainly have attained the object of their ambition, and floated the union jack at the North Pole.

On the 28th they left Hecla Cove, and securing the provisions deposited with so much labor on Red Beach on the way, they rounded Hakluyt Headland on the 30th, and stood south for England. On the 17th of September they reached the Shetland Islands, and anchoring in the Voe, enjoyed the welcome hospitality of the inhabitants. The Hecla being detained in the north by contrary winds, Parry, on the 25th, went aboard the revenue cutter Chichester, which they had fallen in with two days before at Long Hope, in the Orkneys, and was landed at Inverness on the 26th. He proceeded overland to London,

arriving on the 29th of September, the same day on which died aboard the *Hecla* his "Greenland master," who had accompanied him on five Arctic voyages. The vessel finally reached the Thames on the 6th of October, and with her arrival ended the career of Parry as an explorer, though he survived to 1855. He had contributed more than his share by effort and achievement toward the solution of the two great problems—the Northwest Passage and the Discovery of the Pole; and it was through no fault of his that he did not solve both. His attention to every necessary detail, and his constant use of every precaution against mishap to his men and ships, was remarkable. In this last Polar voyage he gave—as Wrangell had done before in more eastern longitudes—a clear conception of how uneven and almost impassable, and broken by water-lanes, is the ice of the Arctic Ocean, and how entirely unlike any frozen surface with which the denizens of more southern climes are familiar. It was conjectured that around the Pole, and far to the south, would be found a solid, uniform crust of ice, on which, with the proper outfit, progress would be as easy and rapid as on one of the more southern frozen lakes. This illusion was rudely broken by the stern logic of very unwelcome and very obstructive facts.



CHAPTER XXXVIII.

**ROSS' SECOND VOYAGE—EMPLOYED BY FELIX BOOTH—JAS. C. ROSS—
FIRST USE OF STEAM IN ARCTIC VOYAGES—LANCASTER SOUND
—NIPPED IN THE ICE—IN WINTER QUARTERS—VISITED BY
ESQUIMAUX—EXHAUSTED TEAMS—PROVISIONS REDUCED—MAG-
NETIC POLE DISCOVERED.**

Capt. John Ross, naturally desirous of vindicating his title to fame as an Arctic explorer, which had been clouded, if not obliterated by his somewhat ignominious failure in 1818, solicited the command of a fresh expedition in 1829, which was refused on the ground of retrenchment in that direction. He was now in his fifty-second year, and as has been intimated, had distinguished himself for bravery and skill in the French war of 1793-1815. Born in 1777, he entered the navy while yet a boy, served fifteen years as a midshipman, seven as a lieutenant, seven as commander, and was promoted to a captaincy in 1818, before proceeding on his first Arctic voyage. The government declining to defray the expense of an exploring expedition where so many had proved unsatisfactory, Ross sought and found a patron in Felix Booth, a wealthy distiller, at that time filling the office of sheriff. Booth was not unwilling to defray the expense, but as the parliamentary reward of \$100,000 to whoever should discover the Northwest Passage might give a color of possible interest or far-sighted speculation to his support of the enterprise, "what might be deemed by others," he said, "a mere mercantile speculation," he insisted on the withdrawal of the prize. This being done, and the government being unwilling to be outdone, he was created a knight for his munificence.

Capt. Ross—he was not yet Sir John—was now empowered by Booth to provide a vessel and the necessary equipment; and he soon proceeded to Liverpool, where he purchased a side-wheel steamer for

the voyage. He is therefore entitled to the credit of being the first to contemplate the use of steam power in Arctic navigation. It was rather an unfortunate selection, as nothing more unpractical than paddle-boxes to encounter ice-floes and ice-packs, can well be conceived. He, however, took the precaution to strengthen his ship, and added various improvements to adapt her to the voyage upon which she was about to enter. The supply of provisions and stores was calculated on a liberal basis for twenty-eight men for 1,000 days, and cost, including price of vessel, \$85,000. When fitted she was of 150 tons burden, and received the name of the Victory.

The second in command was the nephew of the Captain, James Clark Ross, now a commander only, afterward Sir James Ross, who, like his uncle, had entered the navy at the early age of twelve, and had served under him in the Baltic, the White Sea, and the coast of Scotland, and his first voyage in search of the Northwest Passage, in 1818, being then in his nineteenth year. He had since been with Parry in all his voyages from 1819 to 1827, and was now in his thirtieth year. It will be seen that his Arctic experience was large, and he proved an efficient aid to his uncle and chief.

As the government contribution toward the success of the expedition, the admiralty furnished a deck-boat of sixteen tons burden, called the Krusenstern, and two strong boats which had been used by Franklin, together with some books and instruments. The ship and outfit attracted considerable attention, and among a host of less distinguished persons was visited by Louis Philippe, the future king of the French, and many other notables. The Victory was to have been accompanied by a tender or store-ship to lighten her burden until they reached the ice, but a mutiny on this vessel in Loch Ryan, at the entrance to the Firth of Clyde, broke up that arrangement; and she steamed off without a consort, from Woolwich, England, on the 23d of May, 1829. Her engines, however, proved a source of anxiety to Capt. Ross, and their use was soon abandoned. Steamships had as yet been but little used for ocean voyages, and the timidity of inexperience was ready to take refuge in the old and tried method of sailing. It is true, Fitch and Rumsey, in

America, had made experiments in the line of propelling vessels by steam as early as 1783; and in 1788 Fitch had launched a paddle steam-boat in which he made a trip from Burlington to Philadelphia and return, at the rate of four miles an hour. Symington, on the Clyde, had made his first trip the same year; and in 1807 Fulton made the first really successful voyage by steam from New York to Albany, in the Clermont, making one hundred and ten miles in twenty-four hours against wind and tide. In 1808 Stevens made a short ocean voyage by steam from New York to Philadelphia. A steam voyage from Glasgow to London followed in 1815; and one from New York to New Orleans, in 1818. The first steam voyage across the Atlantic was made by the Savannah from New York to Liverpool, in 1819, but having exhausted her supply of coal, she was obliged to have recourse to her sails toward the close of the voyage. Indeed, it was not until 1833 that the route was considered entirely practicable for steam navigation. Now, when even whalers use steam power at least as an auxiliary, one is liable to wonder why Ross did not carry forward his original conception. It is, therefore, but justice to him to draw the reader's attention to the state of the question in that day.

While sailing up Davis' Strait, the Victory, having received some injury to her spars and rigging, put into Holsteinberg, on the Greenland coast, just within the Arctic Circle, for repairs. Leaving on the 26th of June, they found clear sailing through Baffin's Bay and Lancaster Sound, with the thermometer at about 40° , and the weather so mild and genial that the officers could dine without a fire, and even with the skylight partially open. They saw no ice or snow except on the mountain tops; and at the entrance to Barrow Strait, where Parry at one time encountered such obstruction from the ice, there was seen neither iceberg nor ice-floe.

Passing Cape York on the 10th of August, they entered Prince Regent Inlet, and making for the western shore they finally fell in with impeding ice between Sepping and Elwin Bays, on the 12th. The ensuing day they arrived at the place where the Fury had been abandoned, but could see no trace of the disabled vessel. Her supplies and

provisions, which, it will be remembered, had been put ashore preparatory to heaving her on the ice for repairs, were found intact and uninjured, and now furnished seasonable replenishing to those of the *Victory*. They left some for the use of possible future navigators, and made their own stock good for 1020 days from date. On the 15th they reached Cape Garry, just beyond Parry's "limit," but sighted and named by him. Since leaving Elwin Bay they had encountered almost constant obstruction from ice-floe and icebergs, but not to the same extent as their predecessors, having arrived earlier, and the season proving much more favorable. Like them, however, they were often compelled to make fast to the smaller icebergs, or to ice-floe, and drift with them, now backward, now forward, from the shore or toward it, as the wind drove or the current ran, with huge towering masses of ice plunging around on every side. The *Victory* was at times sorely pressed and received several hard knocks and crushing squeezes, besides being carried out of her course on several occasions. Once she lost nineteen miles in a few hours, the current speeding fast in a contrary direction; yet no serious damage was suffered.

"Imagine," says Parry, "these mountains hurled through a narrow strait by a rapid tide, meeting with the noise of thunder, breaking from each other's precipices huge fragments, or rending each other asunder, till, losing their former equilibrium, they fall over headlong, lifting the sea around in breakers, and whirling it in eddies. There is not a moment in which it can be conjectured what will happen in the next. The attention is troubled to fix on anything amid such confusion; still must it be alive that it may seize on the single moment of help or escape which may occur. Yet, with all this, and it is the hardest task of all, there is nothing to be acted, no effort to be made. One must be patient, as if he were unconcerned or careless, waiting as he best can for the fate, be it what it may, which he cannot influence or avoid."

Despite all obstacles they continued to make some progress to the south, and by the middle of September had explored 100 leagues of previously undiscovered coast. They had discovered and named Brentford Bay, thirty miles beyond Cape Garry, with several fine harbors,

which were named Ports Logan, Elizabeth, and Eclipse. Landing on the coast they took possession of the country for the British crown, and named it Boothia Felix, in honor of the patron of the expedition, Sir Felix Booth, with Bellot Strait on the north, the Gulf of Boothia on the east, and Franklin Strait on the northwest.

THE VICTORY IN WINTER QUARTERS.

In what they called by the unpoetic name of Mary Jones Bay, they found a secure refuge for the ship, on the 17th of September, 1829, only 118 days out from Woolwich. To reach it, however, it was found necessary to cut through the ice, and this being done, they made ready for winter. The steam machinery was entirely removed, the vessel housed, and every precaution adopted to secure the safety of the vessel and the health of the men. They were abundantly supplied with necessaries, and the harbor was exceptionally safe for those latitudes. Soon they were frozen in, with huge masses of ice surrounding them to seaward, and the whole landscape covered with snow. The thermometer sank several degrees below zero, and they were fairly entered on an Arctic winter, but full of hope and bright anticipations of what could be done after the usual nine or ten months' detention.

On the 9th of January, 1830, they were visited by an unusually large tribe of Esquimaux, who seemed to be cleaner and brighter, as well as better dressed, than the others of their race hitherto encountered. They were able to draw for Ross, as others had done elsewhere for Parry and Beechey, fairly accurate sketches of the land and sea for many miles around Thom's Harbor, now Felix Harbor, where they lay. As ten years before Parry had found the female Iligliuk the most intelligent of the Esquimaux on Winter Island, so here the woman Teriksin proved to have the clearest ideas of the configuration of the coast of Boothia, Felix and the neighboring lands, bays and inlets. With two of the Esquimaux as guides, Capt. Ross, accompanied by Thomas Blanky, first mate, set out on the 5th of April to explore a strait to the west, which it was hoped might prove a channel to the Arctic Ocean. On this journey, as was afterward learned, they had approached within ten miles of

the point which the younger Ross designated the ensuing year as the magnetic pole. But the present party were on an entirely different errand, and though they discovered a lake and bay, and surveyed the coast some sixty miles farther south, the expedition led to no important results. The younger Ross set out on the 1st of May, and from an eminence descried a large inlet, which promised an outlet to the Arctic Ocean. Returning, he fitted out an expedition to "consist of himself and three companions, with a sledge and eight dogs, and provisions for three weeks." These set out on the 17th of May, and encountering the lake already referred to, and the river—which they named Garry—Ross ascended the hill which he had previously used for his observations, and saw a chain of lakes leading back almost to the harbor he had left. Moving along the shore of the western inlet, which has since been named Sir James Ross' Strait, the party reached Matty Island, and crossing a narrow strait to the west, landed on what they believed was the mainland, and called King William's Land, but which the exploration of Simpson has since shown to be an island, separated from the continent by the strait called by his name.

Pushing north, their dogs became exhausted, and the men had to depend mainly on their own exertions. "When all is ice," says Ross, "and all one dazzling mass of white—when the surface of the sea itself is tossed up and fixed into rocks, while the land is on the contrary, very often flat—it is not always so easy a problem as it might seem on a superficial view, to determine a fact which appears in words to be extremely simple." But despite exhaustion of dogs and men he kept on to the north, and on the 29th reached the most northern point of King William's Land, and named it Cape Felix. Here he beheld the wide expanse of sea now known as McClintock Channel, extending away to the northwest, and to the southwest the narrower channel now called Victoria Strait. Proceeding along the latter they arrived on the 30th at a headland which Ross named Point Victory, and to another which he saw in the distance, he gave the name of Cape Franklin. They were about two hundred miles distant from Felix Harbor, with only a few days' provisions left, and it became necessary to return at once. They

erected the usual cairn, depositing a record of their experience and progress, and turned their faces to the east, with some misgivings that they had already gone too far for their resources. This proved to be the case, for, though the men survived, they lost six of the dogs, and were themselves almost exhausted and helpless, when they had the good fortune to fall in with some Esquimaux on the 8th of June. Hospitably entertained and supplied with a store of fish by these poor children of the frozen north, they rested one day among them, and reached the ship on the 13th, having been absent four weeks instead of three. Capt. Ross had meanwhile surveyed Boothia Isthmus, and discovered another large body of fresh water, which he named Lady Melville Lake.

To their surprise and disappointment they were unable to leave their winter quarters until the very anniversary of their entrance therein, it being the 7th of September, 1830, when they were set free. Advancing only three miles in six days, they were again frozen in on the 23d of September; and the remainder of the month and the whole of October were consumed in getting her into secure quarters. Here another dreary winter had to be passed, and as a precautionary measure, it was deemed prudent by Capt. Ross to reduce the allowance of provisions. The winter proved exceptionally severe, the thermometer going down on some occasions as low as 92° below the freezing point, or 60° below zero. Some surveys and local explorations were made in the spring of 1831, but the most important expedition was the one in relation to the Magnetic Pole.

DISCOVERY OF THE NORTH MAGNETIC POLE.

The scientists of Europe had ascertained by theory and experiment that the north magnetic pole would be found somewhere in the neighborhood of where the Victory was now laid up, or about 70° north, by $98^{\circ} 30'$ west. The younger Ross, afterward known as Sir James Ross, availed himself of the opportunity now furnished by their enforced stay in Felix Harbor to make the observations and calculations necessary to determine its exact location. The expedition set out toward the end of May, 1831, it having been previously ascertained that they were not

far distant from the desired point. The weather had turned stormy; but their zeal took small notice of the change, and they hurried forward toward the place indicated by Ross' calculations. On the 31st they were within about fourteen miles of it; and on the next morning, leaving their baggage and provisions on the beach where they had camped, they arrived at the spot at eight o'clock. "The place of the observation," says Ross, "was as near to the magnetic pole as the limited means which I possessed enabled me to determine. The amount of the dip, as indicated by my dipping-needle, was $89^{\circ} 59'$, being thus within one minute of the vertical; while the proximity at least of this pole, if not its actual existence where we stood, was further confirmed by the action, or rather by the total inaction of the several horizontal needles then in my possession. These were suspended in the most delicate manner possible, but there was not one which showed the slightest effort to move from the position in which it was placed." The very force which attracts millions of free compass-needles all over the northern hemisphere in its direction, was here inactive. The corresponding South Pole of terrestrial magnetism has been computed to be at 66° south latitude, and 146° east longitude—not diametrically opposite therefore, as the geographical poles of the earth are. The famous German mathematician, Gauss, computed that the theoretic location of the north magnetic pole, in 1831, should have been three degrees farther north; but the point determined by Ross differed only eleven minutes from Parry's calculations.

"As soon," says Ross, "as I had satisfied my own mind on the subject, I made known to the party this gratifying result of our joint labors; and it was then that, amidst mutual congratulations, we fixed the British flag on the spot and took possession of the North Magnetic Pole and its adjoining territory in the name of Great Britain and King William IV. We had abundance of materials for building, in the fragments of limestone that covered the beach, and we therefore erected a cairn of some magnitude, under which we buried a canister containing a record of the interesting fact, only regretting that we had not the means of constructing a pyramid of more importance, and of strength sufficient to withstand the assaults of time and of the Esquimaux. Had it been a pyra-

mid as large as that of Cheops, I am not quite sure that it would have done more than satisfy our ambition under the feelings of that exciting day. The latitude of this spot is $70^{\circ} 5' 17''$, and its longitude $96^{\circ} 46' 45''$ west.

"The land at this place is very low near the coast, but it rises into ridges fifty or sixty feet high, about a mile inland. We could have wished that a place so important had possessed more of mark or note. It was scarcely censurable to regret that there was not a mountain to indicate a spot to which so much of interest must ever be attached; and I could even have pardoned any one among us who had been so romantic or absurd as to expect that the Magnetic Pole was an object as conspicuous and mysterious as the fabled mountain of Sinbad, that it was even a mountain of iron, or a magnet as large as Mont Blanc. But nature had here erected no monument to denote the spot which she had chosen as the center of one of her great and dark powers, and where we could do little ourselves toward this end."

Leaving the magnetic pole, and the abandoned Esquimaux huts which they had the good fortune to find there ready for use on their arrival, they set out for the ship. Blinded by snowstorms their progress was slow and difficult, but they reached the harbor in safety after an absence of twenty-eight days. The reader should bear in mind that the magnetic poles are variable points, not fixed positions, as was supposed at the time of the discovery of the northern one by Ross. Arrived at the ship, they were detained some weeks longer in winter quarters; but after an imprisonment of eleven months since their futile attempt to escape on the previous year, they succeeded on the 28th of August, 1831, in working the *Victory* into open water. On the 29th they set sail in the vain effort to push through the ice, but found the task impracticable. By continued exertions for a whole month they had won only four miles; and were again frozen in on the 27th of September, in what they might appropriately have named *Infelix* (Unhappy) Harbor. Seven miles in two years was such hopeless progress that the distant hills of their native land must have seemed beyond their reach forever. But the brave man looks at the impossible as calmly as he may, and turns his attention else-

where. It was therefore determined that on the return of spring their energies should be directed to effecting their escape in another way. It was recollected that on the beach where the Fury had been abandoned by Parry, and where they had, it will be remembered, replenished their stores in 1829, there were, among the other supplies, several boats which belonged to that ill-fated vessel. It was now designed that they should make the best of their way to that point, and availing themselves of the boats, provisions and supplies there to be found, make an effort to reach the whaling grounds in Baffin's Bay, and thus return, if it might be, to their native land. It was a great and arduous undertaking, but not quite as hopeless as the attempt to extricate the Victory had been. It was a chance for life and liberty, and was worth striving for.

On the 23d of April, 1832, they entered on the task. Having collected the necessary supplies, they set out to remove them over the ice. "The loads being too heavy to be carried at once, made it necessary to go backward and forward twice, and even oftener, the same day. They had to encounter dreadful tempests of snow and drift, and to make several circuits in order to avoid impassable barriers. The result was that by the 12th of May they had traveled 329 miles to gain thirty in a direct line." This preliminary work having been laboriously executed, they returned to the ship, and on the 29th of May took their final leave of her. The colors of the Victory were formally hoisted and nailed to the mast; the officers and men left her, and last of all, the commander bade her adieu. "It was," he says, "the first vessel that I had ever been obliged to abandon, after having served in thirty-six during a period of forty-two years. It was like the last parting with an old friend, and I did not pass the point where she ceased to be visible without stopping to take a sketch of this melancholy desert, rendered more melancholy by the solitary, abandoned, helpless home of our past years, fixed in immovable ice till time should perform on her his usual work."

On the 9th of June James Ross, with two companions and provisions for two weeks, struck ahead of the main body to ascertain how matters then stood at Fury Beach. Fortunately, though some of the boats had been washed away since 1829, there were still enough left for their pur-

pose, and the provisions had remained uninjured. Rejoining the main body on the 25th they hastened forward and reached their immediate goal on the 1st of July. They erected a large tent which they named Somerset House, and began to put the boats in readiness.

On the 1st of August they took to the boats, a considerable expanse of open water being available for their northern progress. They, however, as was expected, encountered many obstacles from the ice, but slowly and cautiously they threaded their way amidst the dangerous floes and packs, reaching the northern entrance of Prince Regent Inlet by the close of the month. Arrived there, further progress was barred by the impenetrable masses of ice which encumbered its entrance and the adjoining portion of Barrow's Strait. They were obliged to haul their boats ashore and await a more favorable opportunity. The tents were pitched, and Barrow's Strait was scrutinized day by day, but it refused to yield them an opening. After watching nearly three weeks for the chance that it seemed would never come, with their provisions running low, and starvation staring them in the face should they remain, it was decided to turn their backs once more on England, and go back to Fury Beach, where at least an abundance of provisions for their small party could still be found. They reached Batty Bay, about half way on the return voyage, in the boats, when their further progress by water was stopped by the ice. An overland trip to Somerset House was a repetition of the labors of the spring, but it was safely accomplished in twelve days, and on the 7th of October they were again housed in the capacious tent on Fury Beach.

To make this refuge tenantable during the approaching winter, they built a wall of snow four feet thick all around, and placed a board roof overhead to receive a deep covering of the same. Stoves were found among the abundant stores of the Fury, and by their help this extemporized habitation was made fairly comfortable. They got along very well until the increasing severity of the weather and the intense cold confined them indoors, when scurvy began to appear. On Feb. 16, 1833, Mr. Thomas, the carpenter, died, and two others soon followed. "Their situation was becoming truly awful, since, if they were

not liberated the ensuing summer, little prospect appeared of their surviving another year. It was necessary to make a reduction in the allowance of preserved meats; bread was somewhat deficient, and the stock of wine and spirits was entirely exhausted. However, as they caught a few foxes, which were considered a delicacy, and there was plenty of flour, sugar, soups and vegetables, a diet could be easily arranged sufficient to support the party." While the ice remained firm, it was deemed advisable to remove such provisions as they were not likely to need to Batty Bay, to be in readiness for the summer expedition to the north. The distance was but thirty-two miles, yet it took a month with the reduced force to make the transfer, most of them going over the ground eight times.

They left Somerset House once more on the 8th of July, and on the 12th were encamped at Batty Bay, only to repeat the tedious operation of watching for the opening of the waters, as on the previous year at Barrow's Strait. Thirty-three days' patient scrutiny was rewarded by the discovery of a lane into which they could venture with some hope of reaching the head of the inlet. On the 15th of August they took to the boats, and with patient skill and energy, though the sea was for the most part encumbered with ice, they reached Barrow's Strait two days later. Here an agreeable surprise awaited them; for where the year before the most tortuous egress was found impracticable, this year, though only two weeks earlier in the season, an open sea greeted them on every side. Pushing east they approached Cape York, and a week later reached a safe harbor on the eastern shore of Navy Board Inlet.

On the morning of the 26th, at 4 o'clock—none too early for such joyful news—they were awakened from their heavy and almost hopeless slumbers to learn that a ship was in sight. Quick as men escaping from imminent peril, they jumped to their oars, but the vessel disappeared in the haze before they could reach her, or attract the attention of those on board. And now the revulsion of feeling was fast sinking into despair, when a few hours later they had the good fortune to sight another vessel lying in a calm. Hurriedly and energetically rowing toward her with their eyes fixed in a steady gaze on the glad vision, and their hearts

wavering between hope and fear, they soon reached the stately ship, which proved to be the Isabella of Hull, now a whaler, but fifteen years before, the ship in which Ross made his first Arctic voyage. Her captain and crew could with difficulty be persuaded that their guests were what they represented themselves to be—Capt. Ross and his party of Arctic explorers—for had they not been reported dead two years before? It was a queer story, and one with which it was useless to try to deceive the honest whalers.

English, they were, of course; any one could see that, despite their woe-begone and weather-beaten appearance, and the hospitality of the Isabella should be gladly extended to them; but Capt. Ross and his party were dead and gone, alas! never more to be seen in the flesh, on water or on land! With such demonstration as it was in their power to give, the new-comers soon dispelled the doubts and misgivings of their countrymen, and as soon as it became clear to them that they were indeed the same who had been mourned for in England as dead, the rigging was quickly manned to do them honor, and with three hearty cheers Ross and his party were formally welcomed on board the Isabella.

“Though we had not been supported by our names and characters,” says Ross, “we should not the less have claimed from charity the attentions that we received; for never were seen a more miserable set of wretches. Unshaven since I know not when, dirty, dressed in the rags of wild beasts, and starved to the very bones, our gaunt and grim looks, when contrasted with those of the well-dressed and well-fed men around us, made us all feel—I believe for the first time—what we really were, as well as what we seemed to others. But the ludicrous soon took the place of all other feelings; in such a crowd and such confusion, all serious thought was impossible, while the new buoyancy of our spirits made us abundantly willing to be amused by the scene which now opened. Every man was hungry, and was to be fed; all were ragged, and were to be clothed; there was not one to whom washing was not indispensable, nor one whom his beard did not deprive of all human semblance. All—everything, too, was to be done at once; it was washing, dressing, shaving, eating, all intermingled. It was all the materials of each jumbled together, while

in the midst of all there were interminable questions to be asked and answered on both sides; the adventures of the Victory, our own escapes, the politics of England, and the news which was now four years old. But all subsided into peace at last. The sick were accommodated, the seamen disposed of, and all was done for us which care and kindness could perform. Night at length brought quiet and serious thought, and I trust there was not a man among us who did not then express where it was due, his gratitude for that interposition which had raised us all from a despair which none could now forget, and had brought us from the borders of a most distant grave, to life, and friends, and civilization. Long accustomed, however, to a cold bed on the hard snow, or the bare rocks, few could sleep amid the comforts of our new accommodations. I was myself compelled to leave the bed which had been kindly assigned me, and take my abode in a chair for the night; nor did it fare much better with the rest. It was for time to reconcile us to this sudden change, to break through what had become habit, and to inure us once more to the usages of our former days."

The Isabella prosecuted her fishing for five weeks longer, and did not set out on her return until the 30th of September. They made the Orkneys on the 12th, and Hull on the 18th of October, where the freedom of the city was bestowed on Capt. Ross, and he and his men were entertained at the public expense. On the 19th he set out for London to report to the admiralty, and was soon presented to the king at Windsor. London, Liverpool, and Bristol followed the example of Hull in bestowing the freedom of the respective cities on Capt. Ross. The officers and men received the customary double pay allowed to Arctic explorers, up to the date of abandoning the ship, and the regular pay thereafter. By a vote of parliament in 1834, Capt. Ross received a grant of \$25,000, and was raised by the king to the dignity of a Knight Companion of the Bath. Other honors followed from various quarters, foreign and domestic, and in 1835 he published "Residence in Arctic Regions," etc.,—an account of his second voyage. In 1851 he was created a rear-admiral, and died in 1856. James C. Ross was raised from the rank of commander to that of captain, and was soon after engaged in the magnetic

survey of Great Britain and Ireland. In 1836 he made a voyage to Baffin's Bay for the relief of the frozen whalers of that year; and in 1839-43 was in command of an Antarctic expedition, in which he reached within one hundred and sixty miles of the South Magnetic Pole, and on the return from which he received the honor of knighthood. In 1847 he published his "Voyage of Discovery in Southern Seas, 1839-43." He will again come before the reader as one of the searchers for Sir John Franklin, in 1848.



CHAPTER XXXIX.

**BACK'S ARCTIC JOURNEY—LEAVES LIVERPOOL—FORT RESOLUTION—
GREAT FISH RIVER — AN ARCTIC RESIDENCE — AKAITCHO — A
SLEDGE-JOURNEY — PASSING RAPIDS — CAPE RICHARDSON —
VOYAGE IN THE TERROR—THE TERROR NIPPED IN THE ICE—
IMPRISONED—A MASQUERADE — INCREASE OF LEAKAGE — FREE
AGAIN.**

When Ross had been gone three years on his second voyage without any tidings reaching England, his countrymen became solicitous about his fate. Dr. Richardson first called public attention to the matter, and volunteered his services. As the expedition of Ross was not under government auspices, a sufficient justification of the expense to be incurred would be found in the proposed survey of a portion of the unexplored coast of North America. His project was to strike out from Hudson's Bay by the northwestern route to Coronation Gulf, where he was to commence his search for the missing ship, proceeding in an easterly direction to Melville Peninsula, thus completing the survey from the Return Reef of Franklin, to the Fury and Hecla Strait, of Parry. The proposition was favorably received by the authorities, but no action was taken, the ministry of that period being too much pre-occupied with the intense political activities which then prevailed in England.

In November, 1832, a public meeting was called at London, to set on foot a popular subscription to fit out a private expedition for the relief of Ross. Twenty thousand dollars were thus raised, to which the government, at the suggestion of Lord Goderich—afterward Earl of Ripon, at the time colonial Secretary of State—added ten thousand. Capt. Back, who, it will be remembered, had already made two overland journeys to the coast of North America in company with Franklin and Richardson, offered his services, which were promptly accepted.

He at once set about his preparations, and to facilitate the execution of his plans, he was formally commissioned by the Hudson's Bay Company, and received instructions from the colonial office. Accompanied by Dr. Richard King as naturalist, and three men who had been with him and Franklin in 1825, Back left Liverpool for New York on the 17th of February, 1833, arriving in safety by one of the regular packet ships after a stormy voyage of thirty-five days. Proceeding to Montreal, he was joined by four volunteers from the royal artillery; and engaged some French Canadians as boatmen and porters. They set out in two canoes on the 25th of April, and lost two men by desertion on the Ottawa River. Reaching Norway House, a post of the Hudson Bay Company, at the northern extremity of Lake Winnipeg, Back made his final preparations, and set out from that point on the 28th of June, to continue the overland trip to the northwest. At Pine Portage he was joined by an employe of the Hudson Bay Company, deputed by Gov. Simpson for that purpose. His name was A. R. McLeod, and he had just returned from the MacKenzie River with a valuable cargo of furs. He was accompanied by his wife, three children and a servant, all of whom were now joined to Back's party. They arrived at Ft. Chipewyan, on the western end of Lake Athabasca, the 20th of July; and at Ft. Resolution, on Great Slave Lake, the 8th of August. Back thus describes his immediate surroundings in camp at Ft. Resolution:

“At my feet was a rolled bundle in oil-cloth, containing some three blankets, called a bed; near it a piece of dried buffalo, fancifully ornamented with long black hairs, which no art, alas! can prevent from insinuating themselves between the teeth, as you laboriously masticate the tough, hard flesh; then a tolerably clean napkin, spread by way of tablecloth, on a red piece of canvas, and supporting a teapot, some biscuits, and a salt-cellar; near this a tin plate; close by a square kind of box or safe of the same material, rich with a pale, greasy hair, the produce of the colony at Red River; and the last, the far renowned pemmican, unquestionably the best food of the country for such expeditions as ours. Behind me were two boxes containing astronomical instruments, and a sextant lying on the ground, while the different corners of the tent

were occupied by a washing apparatus, a gun, an Indian shot-pouch, bags, basins, and an unhappy looking japanned pot, whose melancholy bumps and hollows seemed to reproach me for many a bruise endured upon the rocks and portages between Montreal and Lake Winnipeg. Nor were my crew less motley than the furniture of the tent. It consisted of an Englishman, a man from Stornaway, two Canadians, two metifs or half-breeds, and three Iroquois Indians. Babel could not have produced a worse confusion of inharmonious sounds than was the conversation they kept up."

Here Back separated from McLeod and his family, five of his men being detailed to accompany them, while with the other four he pushed forward to the northeast in search of the upper waters of the Thlew-ee-Choh, or Great Fish River of the North. On Aug. 19 they began the ascent of the series of rapids and waterfalls which form the Hoar Frost River; and on the 27th—after eight days of weary struggle with forests, swamps, portages, streams, lakelets, rapids, and cascades—Back, from the summit of a hill, saw to the northeast the wide expanse of water now known as Aylmer Lake. Sending forward three men with a canoe to explore the connecting river, Back proceeded to search the vicinity of the camp, and discovered the source of the great river he sought, in Sand Hill, now Sussex Lake. The men returned on the 29th, having reached Aylmer Lake on the second day out; and Back celebrated his discovery with them. "For this occasion," he says, "I had reserved a little grog, and need hardly say with what cheerfulness it was shared among the crew, whose welcome tidings had verified the notion of Dr. Richardson and myself, and thus placed beyond doubt the existence of the Thlew-ee-Choh, or Great Fish River."

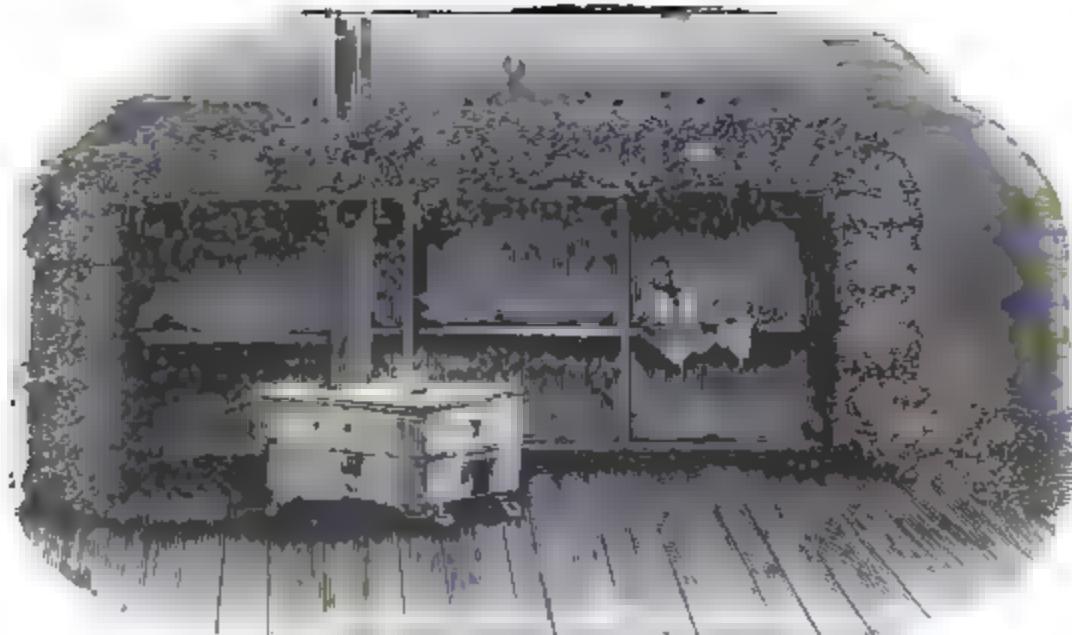
Attempting to push on to the river proper on the 30th, they found the rapids of Musk-ox Lake impracticable with their present equipment, and concluded to return to Great Slave Lake for the winter. They struck the lakes Clinton-Colden and Artillery on the return trip, and abandoning their canoe, set out across the rugged and broken country for the appointed rendezvous. Climbing over precipices and picking their way through gorges and ravines encumbered with masses of gran-

ite, they reached the extreme northeast corner of Great Slave Lake before the middle of September. Here they found McLeod and his party returned; and the framework of a comfortable residence set up by them. With the increased help, it progressed rapidly; and here, on the 16th, they were joined by Dr. King, with two bateaux laden with supplies. On the 5th of November the house was ready for occupancy, and they gladly exchanged their tents for its welcome shelter. It was fifty feet long by thirty wide, and was divided into four rooms, besides a central hall, where they received their Indian visitors. To it was attached a more rudely constructed kitchen. It proved a very severe winter, the thermometer descending to 70° below zero, and they were surrounded by starving Indians, whom they were but little able to assist from their limited stores. Hunting, their only resource, failed them, and they haunted the camp of the whites for the occasional relief that could be spared them. "Famine, with her gaunt and bony arm," says Back, "pressed them at every turn, withered their energies, and strewed them cold and lifeless on the bosom of the snow. Often did I share my own plate with the children, whose helpless state and piteous cries were peculiarly distressing; compassion for the full grown may or may not be felt, but that heart must be cased in steel which is insensible to the cry of a child for food."

Akaitcho, an Indian chief of the region near Artillery Lake, now opportunely made his appearance at Fort Reliance, the abode of Back and his party, with supplies of fresh provisions, which enabled them to give some aid to the starving Indians. They also reduced their own allowance, the officers contenting themselves with half a pound of pemmican per day. The cold grew more intense, and the hunters could scarcely handle their weapons. It was found necessary to wrap the triggers in leather thongs, the pains arising from the touch of cold steel were so excruciating. "Such, indeed, was the abstraction of heat," says Back, "that with eight large logs of dry wood on the fire, I could not get the thermometer higher than 12° below zero. Ink and paint froze. The sextant boxes and cases of seasoned wood, principally fir, all split. The skin of the hands became dry, cracked, and opened into unsightly

gashes, which we were obliged to anoint with grease. On one occasion, after washing my face within three feet of the fire, my hair was actually clotted with ice before I had time to dry it." The whites were now themselves in danger of perishing, their hunters being unable to replenish their fast-dwindling stores; but Akaitcho, with his more hardy and experienced Indians, succeeded in procuring considerable game, which he freely shared with the strangers. "The great chief trusts in us," he said, "and it is better that ten Indians should perish, than that one white man should perish through our negligence and breach of faith."

On the 14th of February, 1834, McLeod removed his family nearer to the Indian hunting grounds in the hope of being better able to supply



KITCHEN AT FORT RELIANCE.

their wants. Six of the natives near his new camp died of starvation, and his party were for a time in some danger of meeting the same fate. On the 25th of April a messenger arrived at Fort Reliance, to inform Back of the arrival in England, of Capt. Ross and the survivors of his party. "In the fullness of our hearts we assembled together," says Back, "and humbly offered up our thanks to that merciful Providence, who, in the beautiful language of Scripture, hath said: 'Mine own will I bring again, as I did sometime from the deeps of the sea.' The thoughts of so wonderful a preservation overpowered for a time the common occurrences of life. We had just sat down to breakfast, but our appetite was gone, and the day was passed in a feverish state of excitement."

Back, however, did not relax in his preparations for exploring the Great Fish River, to which he could devote himself with the less distraction, now that he was relieved from all apprehension about Ross. Having sent McLeod and his party ahead to hunt, with instructions to make deposits of provisions at proper intervals, and having buried at Fort Reliance such stores as they desired to take along, Back set out on the 7th of June, accompanied by Dr. King, four attendants, and an Indian guide. At Artillery Lake he found the boat builders he had dispatched in advance, and the boats they had constructed. Taking the best of these, he fitted it with runners after the manner of Parry's boats in 1827. They took a fresh start on the 14th, with six dogs attached to the boat-sledge, but encountering severe snowstorms and strong winds, their progress was slow. On the 23d they found one of McLeod's deposits containing a supply of deer and musk-ox flesh, and two days later, a second—in all, eleven animals. To overcome the squeamishness of the men, Back ordered that his own rations and those of the officers, should comprise a due share of the objectionable musk-ox flesh, and impressed upon them the necessity of combating their prejudices, and using with thankfulness such food as the country supplied.

Reaching Sand Hill Lake on the 27th, they found McLeod's party encamped there; and the next day, after a short portage of only a quarter of a mile, the boat was launched on the upper waters of the Great Fish River. They soon reached Back's limit of the preceding year, and having successfully accomplished the long portage of four miles beyond, Back made his final dispositions before proceeding to descend the river. He directed McLeod with ten men and fourteen dogs to return to Fort Resolution to take charge of the supplies to be forwarded to that point by the Hudson's Bay Company; to select a permanent fishing station, and erect a suitable building; and to return by the middle of September to the Great Fish River to afford such assistance as might be required by the exploring party on its return from the north. The carpenters, with an Iroquois guide, were sent a day or two later to join McLeod; and on the 8th of July Back, accompanied by ten persons, took his departure in the boat, with 3,360 pounds of provisions for the round trip.

Now began a series of remarkable feats of dexterity and courage. Rapid after rapid had to be passed, always with elements of danger, and often bristling with chances of disaster. For about a hundred miles they had the exciting alternations of cascades and rapids in quick succession. In many of these a slight miscalculation, or what in other circumstances would be a trifling negligence, would have proved fatal; but the skill and quick dexterity of the men was never at fault, and the boat was safely guided through the most precipitous rapids. Sometimes it was necessary to unload her, and carry the provisions ahead to be again put aboard as soon as the plunge was successfully made. At one time, where the river trends to the south, it seemed as if it would conduct them to Chesterfield Inlet and Hudson's Bay, but soon it again turned to the north, and there remained no doubt that it was the Great Fish River. After a time they reached the wide expansions which Back successively named Lakes Pelly, Garry, Macdougall and Franklin. On the 28th of July they fell in with a tribe of thirty-five Esquimaux, who proved of great service to them in making the last long portage, worn out as they were by their previous labors. Back descried in the distance the headland at the mouth, which he named Victoria, and concluded that he had at length reached the estuary of the river.

"This, then," says he, "may be considered as the mouth of the Thlew-ee-Choh, which, after a violent and tortuous course of 530 geographical miles, running through an iron-ribbed country, without a single tree on the whole line of its banks, expanding into five large lakes, with clear horizon, most embarrassing to the navigator, and broken into falls, cascades and rapids, to the number of eighty-three in the whole, pours its water into the Polar Sea, in latitude $67^{\circ} 11'$ N., and longitude $94^{\circ} 30'$ W., that is to say, about thirty-seven miles more south than the Coppermine River, and nineteen miles more south than Back's River (of Franklin), at the lower extremity of Bathurst's Inlet," which opens south from Coronation Gulf. Pushing forward along the eastern shore of the estuary with great difficulty, without fire, and almost without water, in cold, foggy weather, tramping through slush and snow, they reached, in ten days, $68^{\circ} 13' 57''$ by $94^{\circ} 58' 1''$, which Back concluded

to make the limit of his exploration. Across the estuary to the north-west he saw a headland at $68^{\circ} 46'$ by $96^{\circ} 20'$, he named Cape Richardson, having before named Capes Beaufort and Hay on the eastern side.

Returning, five weeks were consumed in ascending the river to Sand Hill Lake, where they arrived Sept. 16, and found McLeod awaiting them with much needed supplies, as many of their provision depots had been rifled by the wolves. On the 24th they fell in with some Indians, and soon after abandoned their boat because of the difficulty of the ascent, taking their provisions on their backs, about seventy-five pounds to each. On the 27th they reached their old quarters at Ft. Reliance, "truly grateful for the manifold mercies they had experienced in the course of their long and perilous journey," after an absence of 112 days on the part of Back and his immediate attendants. All but six were sent with McLeod to the fishing station he had selected, and Parry's small party settled for the winter, the monotony of which was relieved by hunting and occasional visits from Akaitcho and other Indians.

On the 21st of March, 1835, leaving Dr. King with instructions to proceed to York Factory, on Hudson Bay, when the season opened, there to take ship for England with his companions, Back set out to retrace the overland route to Canada. He visited McLeod and party at the fishery, and arrived at Norway House, on Lake Winnipeg, on the 24th. Here his accounts with the Hudson's Bay Company were adjusted, and he pushed forward through Canada to New York, whence he sailed to England, arriving at Liverpool on the 8th of September, 1835, after an absence of two years and seven months, less nine days. A month later Dr. King and the others of the party arrived in England by one of the Hudson's Bay Company's ships. Back was awarded the gold medal of the Royal Geographical Society, and promoted to the rank of post-captain in the navy. The river he discovered was afterward called by his name, without, however, entirely losing its older designation.

BACK'S VOYAGE IN THE TERROR.

At the instigation of the Royal Geographical Society, Capt. Back undertook a voyage of exploration, or survey, mainly to supply some

missing links in the chain of former discoveries in North America. He was to make for Wager River or Repulse Bay, as might be found most practicable; and thence to dispatch exploring parties to reach Franklin's Point Turnagain to the northwest, and Parry's Fury and Hecla Strait to the north, along the western coast of Melville Peninsula.

The Terror was made ready for sea with the proper equipment of men and supplies, and in nine months after his return Back set sail for the northwest on the 14th of June, 1836. About the 1st of August they encountered the ice in Davis' Strait—Back noticed one iceberg "the perpendicular face of which was not less than 300 feet high"—and soon became entangled in the ice-floe. Pushing through Hudson's Strait, they reached Salisbury Island on the 14th of August, and made across the lower portion of Fox's Channel, for the Frozen Strait, on their way to Repulse Bay. On the 5th of September they had to force their way into open water, and Back thus describes the scene: "The light-hearted fellows pulled [the obstructing masses of ice] in unison to a cheerful song, and laughed and joked with the unreflecting merriment of schoolboys. Every now and then some luckless wight broke through the ice, and plunged up to his neck; another, endeavoring to remove a piece of ice by pushing against a larger mass, would set himself adrift with it, and every such adventure was followed by shouts of laughter and vociferous mirth."

"On the 20th of September, shortly after 9 o'clock," says Back, "a floe piece split in two, and the extreme violence of the pressure curled and crumpled up the windward ice in an awful manner, forcing it against the beam fully eighteen feet high. The ship cracked, as it were, in agony, and strong as she was, must have been crushed had not some of the smaller masses been forced under her bottom, and so diminished the strain by actually lifting her bow nearly two feet out of the water. In this perilous state steps were taken to have everything in readiness for hoisting out the barge; and, without creating unnecessary alarm, the officers and men were called on the quarter-deck, and desired, in case of emergency, to be active in the performance of their duties at the respective stations then notified to them. It was a serious moment for all, as

TERROR NIPPED IN THE ICE.



the pressure still continued, nor could we expect much if any abatement until the wind changed." The next day, after being more than twenty-four hours in imminent peril of being crushed by the pressure, "One mass of ponderous dimensions burst from its imprisonment below," and the staunch Terror, "after several astounding thumps under water," regained her upright position, substantially uninjured. They had now been a month beset, and had concluded to cut an ice-dock for the ship, when the ice-continent began to break up into detached masses and hummocks. For several days the ship was out of position, with her stern seven feet and a half too high, her bow correspondingly low, and her deck a slippery inclined plane. On the first of October the vessel righted, with a snug dock, just her size, ready made by the ice-king. They now proceeded to surround the ship with snow-walls, and to erect an observatory on the floe, thus extemporizing winter quarters.

On the 22d a masquerade party was held on board, and theatrical entertainments followed, to the great delight of the heterogeneous crew. A few of these were men-of-war's men; half a dozen, perhaps, had seen service in Greenland vessels; and the bulk of the remainder, seamen only in name, had served in the coasting colliers of England. And so the winter wore away with the Terror "securely locked in the ice, but with no guaranty against sudden and dangerous surprises, while she helplessly drifted—slowly or rapidly, according to circumstances—hither and thither, under the influence of the wind and the movement of the surrounding ice. Christmas came and went; the first of January, 1837, followed; January gave way to February, and there was yet no change. As the 19th of that month passed the dividing line into the 20th, a new danger arose. For three hours after midnight, the ice alternately opened and shut, threatening to crush the stoutly-built Terror, like an egg-shell. At 4 o'clock great fissures appeared, and the ice began to move. After eight it grew more quiet, and at nine Back summoned the men to the quarter-deck to give them such exhortations and advice as the occasion required. He reminded them that as British seamen they were called upon to conduct themselves with coolness and fortitude, and that, independently of the obligations imposed by the Articles of War,

every one ought to be influenced by the still higher nature of a conscientious desire to do his duty. They were five to eight miles from the north coast of Southampton Island. Extra clothing was dealt to the men; bales of blankets, bear-skins, provisions and fuel were piled on deck, to be in readiness at a moment's notice. At noon the floe began to drift to the north. "Though I had seen," says Back, "vast bodies of ice from Spitzbergen to 150° west longitude, under various aspects, some beautiful, and all more or less awe-inspiring, I had never witnessed, nor even imagined, anything so fearfully magnificent as the moving towers and ramparts that now frowned on every side."

For three hours the ship remained unmolested, except by the usual pressure of the ice; but at 5 o'clock an extra nip was received by the opening and shutting of the floe in which she was embedded, and another an hour later seemed to make every plank groan in agony, while she was lifted up eighteen inches. A similar squeeze was experienced at seven from the closing of a narrow lane astern; and then for nine hours there was quiet. A movement of the ice at 4 o'clock released the ship, and she rode once more in the water, only to be again lifted, an hour later, eighteen inches as before. At intervals, there was a jerk from the ice underneath, and a squeak from the ship's timbers, but no important change till the 15th of March. Back thus records what then happened: "While we were gliding quickly along the land—which I may here remark had become more broken and rocky, though without attaining an altitude of more than perhaps one hundred to two hundred feet—at 1:45 P. M., without the least warning, a heavy rush came upon the ship, and with a tremendous pressure on the larboard quarter, bore her over upon the heavy mass on her starboard quarter. The strain was severe in every part, though from the forecastle she appeared to be moving in the easiest manner toward the land ice. Suddenly, however, a loud crack was heard below the mainmast, as if the keel were broken or carried away; and simultaneously the outer stern-post from the ten-foot mark was split down to an unknown extent, and projected to the larboard side upward of three feet. The ship was thrown up by the stern to the seven and a half feet mark; and that damage had been done was

soon placed beyond doubt by the increase of leakage, which now amounted to three feet per hour."

Extra pumps were worked; and the cutters with two whale-boats were loaded and hauled off to places of greater security. An ever-increasing rush began about 8 o'clock; and at 10:45 it came on with a roar toward the ship, upturning the ice in front, and rolling layer upon layer to a height of twenty-five feet. This huge mass was pushed forward until it reached the stern, where it stopped, hurling however, a considerable fragment on the larboard quarter, creating a temporary leakage by the straining of the stern. Two hours later, a similar rush with a like consequence took place, with the additional result of lifting the ship's stern, and breaking up their "cherished courtyard, its walls and arched doors, gallery, and well-trodden paths, which were rent, and in some parts ploughed up like dust. Within fifteen minutes another surging mass, thirty feet high, was driven toward the starboard quarter, creating also a temporary leakage, but the main body falling short of the ship as before. The ship cracked and trembled and groaned violently; and the rushes continued at intervals, but with diminished force until 4 o'clock in the morning of March 16, when it grew still. They were only three miles from a spit of land, which was bristling with shore ice surmounted by a ridge of rolled-up ice perhaps sixty feet in height, and which they named Point Terror.

Now another season of comparative repose set in, lasting almost three months, the vessel still drifting with the ice—several hundred miles from first to last—when, on the 11th of July, while the men were occupied with the labor of cutting her loose, they were startled by various crackings and noises underneath. Soon a loud rumbling was heard, and an instant later the ship at length floated free in her natural element, having finally burst the icy bonds which held her fast nine months. During four of these she was held out of the water in an ice-cradle, or floating ice-dock; and for weeks before being frozen in, she was so closely beset that she may be said to have been imprisoned for almost eleven months out of the thirteen that had passed since she left England. They had cut the ice to within four feet of the stern-post before she broke loose, and

then she was almost capsized by the upheaval of the loosened mass beneath. She righted on the 14th, but there was nothing left except to return to England, fortunate if, in her disabled condition she could make the voyage. Calking, patching, and staunching her gaping wounds as best they could, they sailed for home, relinquishing all attempt to extend the scope of geographical knowledge of North America. The *Terror* not only made the voyage in safety, but will be again heard of in a second encounter with Arctic dangers.



CHAPTER XL.

DEASE AND SIMPSON IN NORTH AMERICA — WINTER AT FORT CONFIDENCE — SHOOTING ESCAPE RAPID — CAPE PELLY — RICHARDSON'S RIVER — MONTREAL ISLAND — MIDDENDORF IN TAIMUR PENINSULA — DESCENDS THE YENISEI — SAMOYEDS — HUNTING BUTTERFLIES — ARCTIC ANIMALS — TAIMUR LAKE — LEFT ALONE — FAREWELL TO THE TAIMUR.

Back's land journey and sea voyage left the breaks in the coast survey of North America unclosed, and the task of completing the exploration was intrusted by the Hudson's Bay Company to two of their officers, Peter Warren Dease and Thomas Simpson. At the very time when the Terror was floating helplessly in the ice of Frozen Strait and Fox's Channel, these overland explorers, with a company of twelve men, were swiftly descending the MacKenzie, and in July and August of that year (1837) they surveyed the 146 intervening miles between Franklin's Return Reef and the spot just beyond Point Barrow, whence Elson returned to the Blossom in 1826, as stated in a preceding chapter. The ground was found frozen to a depth of several inches, and the spray froze on the oars and rigging of the boats. Two rivers, the Garry and the Colville, were discovered. The ice-floe from the north closing in to the shore ice, they were compelled to abandon their boats, when the hardier of the leaders, Simpson, with some of the more robust of the men, pushed forward on foot, carrying their provisions on their backs, and on the 4th of August reached the goal already referred to. Thomas Simpson was well adapted to the arduous undertaking, having once performed the feat of marching in mid-winter from York Factory on Hudson's Bay to Ft. Chipewyan, on Lake Athabasca, a distance of about 2,000 miles, with no protection against the cold but a cloth cloak.

They now returned to Fort Confidence on Great Bear Lake to spend the winter, with instructions to devote the ensuing season to extending the survey from Franklin's Point Turnagain, of 1821, to the eastward until they met Back's party expected in that region, overland from their projected quarters at the head of Repulse Bay or Wager River, which, as has been seen, they were unable to reach. On the 6th of June, 1838, they left Fort Confidence, and ascended a river which empties into Great Bear Lake from the north, and which they named Dease River in honor of one of the leaders of the expedition. Making thence for the Copper-mine, they descended that river to Coronation Gulf, which they reached on the 1st of July, after a dangerous passage through the rapids. The shooting through Escape Rapid is thus described by Simpson: "A glance at the overflowing cliff told us that there was no alternative but to run down with a full cargo. In an instant we were in the vortex; and before we were aware, my boat was borne toward an isolated rock, which the boiling surge almost concealed. To clear it on the outside was no longer possible; our only chance of safety was to run between it and the lofty eastern cliff. The word was passed, and every breath was hushed. A stream which dashed down upon us over the brow of the precipice, more than a hundred feet in height, mingled with the spray that whirled upward from the rapid, forming a terrific shower-bath. The pass was about eight feet wide, and the error of a single foot on either side would have been instant destruction. As, guided by Sinclair's consummate skill, the boat shot safely through those jaws of death, an involuntary cheer arose. Our next impulse was to turn round to view the fate of our comrades behind. They had profited by the peril we incurred, and kept without the treacherous rock in time."

Here they awaited the opening of the ice until the 17th, when they proceeded east, reaching Cape Barrow on the 29th. Unable to cross Bathurst Inlet because of the ice-pack, they pushed northeast through Arctic Sound, doubling Cape Flinders— $68^{\circ} 15'$ by $109^{\circ} 15'$ —in Kent Peninsula, on the 9th of August. Here, in a little bay, which they named Boat Haven, about three miles short of Point Turnagain, their further progress was blocked by the ice; and here they waited in vain

for an opening till the 20th, when Simpson, with seven men and provisions for ten days, set out on foot. They arrived at Franklin's "limit" the first day, and on the 23d they reached a bold, elevated headland, of which Simpson says: "I ascended the height, from whence a vast and splendid prospect burst suddenly upon me. The sea, as if transformed by enchantment, rolled its fierce waves at my feet, and beyond the reach of vision to the eastward, islands of various shape and size overspread its surface; and the northern land terminated to the eye in a bold and lofty cape, bearing east-northeast, thirty or forty miles distant, while the continental coast trended away southeast. I stood, in fact, on a remarkable headland, at the eastern outlet of an ice-obstructed strait. On the extensive land to the northward I bestowed the name of our most gracious sovereign, Queen Victoria. Its eastern visible extremity I called Cape Pelly, in compliment to the governor of Hudson's Bay Company."

Simpson now retraced his steps to Boat Haven, which he reached on the 30th, having surveyed one hundred and forty miles of coast-line to the east of Point Turnagain. Preparations were rapidly made for the return to Fort Confidence, and they began the ascent of the Coppermine River on the 3d of September. Arriving at the mouth of the Kendall River, they struck out across the country to the west—leaving the boats until they should need them in the spring—and reached their winter quarters on the 14th.

Setting out in June, 1839, for their third expedition, they devoted a week to exploring Richardson's River, which enters Coronation Gulf in longitude $115^{\circ} 56'$, and arrived at the gulf toward the end of the month. To their great surprise and delight they found it almost free of ice, and pushing rapidly east, they doubled Cape Barrow on the 3d of July. Reaching Cape Franklin, Simpson's limit of the previous year, a month earlier than on that occasion, they doubled Cape Alexander, at the eastern entrance of Dease's Strait, in latitude $68^{\circ} 55'$ and longitude $106^{\circ} 45'$, on the 28th. They now coasted the large bay or gulf extending five or six hundred miles to the east, still unnamed, until the 10th of August, when they entered the narrow strait which separates the continent from King William's Land—now proved to be an island—and

which has been named in honor of the explorer, Simpson's Strait. On the 13th they passed Richardson's Point and Point Ogle, on the estuary of the Great Fish River—Back's limit in 1834. On the 16th, still following the southern trend of the estuary, they reached Montreal Island, where Back had left a deposit of provisions. The pemmican was found unfit for use, and the chocolate also for the most part, but they managed to scrape up enough to make a kettle full, and picked up a tin case and a few fish-hooks, "of which," says Simpson, "Mr. Dease and I took possession as memorials of our having breakfasted on the very spot where the tent of our gallant, though less successful precursor, had stood that very day five years before."

Still pushing eastward, they reached Aberdeen Island four days later, and their limit on the 25th. This was near Cape Herschel, and was marked by the usual cairn and deposit of documents. From a monument top three miles inland they beheld Boothia Felix to the north and some islands in Boothia Gulf to the east, and were in fact on what is now known as Boothia Isthmus, but which for a time was supposed to be a peninsula, and named after Simpson. They were about ninety miles south of the North Magnetic Pole as ascertained by Ross eight years before. Retracing their course and making a digression to the north through Victoria Strait to explore the east coast of Victoria Land about 150 miles, they reached the Coppermine on the 16th of September, and Fort Confidence on the 24th, after a boat voyage of 1,600 miles and an absence of not quite four months. Simpson, the hero of these expeditions, did not long survive, having been assassinated the ensuing year, at the early age of thirty-six, by his Indian guides, between the head waters of the Red River and the Mississippi, while on his way to England.

MIDDENDORF IN TAIMUR PENINSULA.

On the 4th of April, 1843, the academician, Th. Von Middendorf, accompanied by a Danish forester named Brandt, and a single servant, had arrived on the Yenisei, below Turuchausk— 61° by $90^{\circ} 30'$, east—with a commission from the Academy of Sciences at St. Petersburg to

explore the northernmost peninsula of Asia, known as Taimur. It has been stated in a preceding chapter how one of the brothers Laptev had reached the mouth of the Taimur River, in 1741. It was now deemed desirable in the interests of science to ascertain the effect of summer in the most northern continental climate of the globe. Middendorf, an eminent naturalist, volunteered his services, which were gladly accepted. He was eminently qualified for the undertaking, being possessed of great physical strength, manual dexterity and powers of endurance, besides his recognized intellectual ability, untiring zeal for science, and indomitable determination.

Descending the Yenisei to the point whence he determined to strike across the country, he was joined by the topographer of the expedition and three Cossacks, and some native Tungusi guides. These preliminaries were scarcely adjusted when some of the company were taken down with the measles. A primitive ambulance was provided for them, in the shape of boxes lined with skins, and placed on sledges. Clearing the forests on the 13th, they struck the open tundras with the thermometer 36° below zero. Pushing to the northeast they crossed the Pasina River, and falling in with one Samoyed horde after another—the temporary and only residents of those cold regions—they reached Filipowskoi-Karonoi, in latitude $71^{\circ} 5'$, on the Boganida, which flows south and joins the Cheta, an affluent of the Chatanga. This flows northeast to the Polar Sea, on the eastern coast of the Taimur Peninsula, and Middendorf was anxious to reach it before the melting of the snow. Here, however, he was compelled to halt, as all of his party were sick with the measles. Making an excursion to the Chatanga to start the necessary preparations for his voyage down that river, but finding the epidemic prevailing at Chatangskoi, he quickly changed his purpose, and determined to proceed almost due north for Taimur River. Returning to Filipowskoi-Koronvi, he quickly procured the construction of the framework of a boat of twelve feet keel, and set out on the 19th of May, with the topographer, an interpreter and two Cossacks, and sixty-eight reindeer, in company with some Samoyeds who were bound that way. Brandt and the others were left behind, with instructions to occupy them-

selves, as soon as able, with making meteorological observations, and collections of the fauna and flora of the country.

Reaching the Novaya River, a tributary of the Taimur, the party suffered severely from a terrific snowstorm from the 27th to the 30th. Resuming their journey on the 31st, they made slow progress over the fresh-fallen snow, and did not strike the Taimur until the 14th of June, in latitude 74° . Middendorf now pitched his tents, and proceeded to complete his boat, which he named the Tundra. The ice began to break up on the 30th, and on the 5th of July she was launched by the light of the midnight sun. North winds delayed his progress to and through Taimur Lake, but beyond the increased rapidity of the current, hurried him on. On the 6th of August they had the first frost, and on the 24th they reached the sea, in $75^{\circ} 40'$.

The statement of the eminent Swiss naturalist, De Saussure, that the difference between light and shade is greatest in summer and in the higher latitudes, received confirmation from the observations of Middendorf. With the thermometer at 37° below zero in the shade, the hillsides exposed to the sun were dripping with wet, and toward the end of June, with the mean temperature below the freezing point of water, the snow had already disappeared from the sunny side of the Taimur. Torrents swept down the hillsides, and the great rivers rose forty feet above the winter level, sweeping the ice along to the sea. On the 3d of August, Middendorf, in light underclothes and barefooted, hunted butterflies in latitude $74^{\circ} 15'$, the thermometer rose to 68° , and near the ground to 86° , while at a spot exposed to the northeast wind it fell to 27° . The moisture of the air was very great; in May thick snow fogs obscured the atmosphere; in June these changed to vapor fogs, which daily turned to light, intermittent showers, but toward midnight the atmosphere usually grew clear and serene. Contrary to Arago's opinion, it was found that thunderstorms occur within the Arctic, and winds rose very suddenly. Toward the end of August the south and north winds seemed to struggle awhile for the supremacy, but the north wind soon gained the ascendancy. The fall of snow is comparatively light, and for the most part is swept by the fierce winds into ravines, and to the great

ridges of snow-drift which form the dividing line beyond which the wandering Samoyeds do not penetrate. Middendorf was astonished to find on the tundra, toward the end of winter, only two to six inches of snow, and in the lakes and rivers only four to eight feet of ice, according to the quantity of snow with which it was covered, as far north as 74° . The land was found to consist of barren plateaux, with occasional undulating heights, where the scant vegetation scarcely concealed the boulders and sand which formed the underlying crust. A brownish moss is the chief covering of the soil, except where along the streams and in depressions the grass gains the ascendency, and in specially favorable situations attains a growth of three or four inches. On the protected slopes of lake and river, Middendorf found considerable patches of green sward, with a good growth of grass and flowers. If one wishes "to see the grass grow," he should visit the Taimur, where the progress of vegetation is probably the most rapid in the world. The animals found were the same as are encountered in both hemispheres as high as latitude 75° —snow-hares, foxes, wolves, reindeer; bees, hornets, butterflies, caterpillars; spiders, flies, gnats; and last, though not least, the wary gull and ptarmigan.

Notwithstanding the energy and quickness of Middendorf, the accumulated result of numerous petty delays was, that he only reached the Taimur at a date when he should have been on his way back. The epidemic had not only struck his own immediate party, but the inhabitants of Chatangsk, whence he had originally proposed to take the quicker route by river, and also the horde of Samoyeds, on whose guidance and aid he had relied. Devoting a single day, the 25th of August, to the observation of the Polar Sea, he saw it free from ice as far as the eye could reach from an elevated point on the coast, and on the 26th set out on his return. "The great distance," he says, "from any human habitation, the rapid stream, against which he had now to contend, and the advanced season, with its approaching dark nights and frosts, made our return an imperative necessity, and I could have but little reliance on our remaining strength. The insufficient food and the fatigues of our journey, often prolonged to extreme exhaustion, had reduced our vigor; and



TCHUN—A SAMOYED CHIEFTAIN.

we all began to feel the effects of our frequent wading through cold water when, as often happened, our boat had grounded upon a shallow, or when the flat mud banks of the river gave us no alternative for reaching the dry land. It was now the second month since we had not slept under a tent, having all the time passed the nights behind a screen, erected on the oars of the boat as a shelter against the wind."

The north wind helped them forward, and with oars and sail they proceeded to the south, passing two rapids which they at first thought insurmountable. On the 31st a gust of wind drove them on a rock, disabling their rudder; and on the 5th of September another drove them on a sand bank in the northern end of Taimur Lake. With the temperature at only 27° at noon, their clothes were covered with a solid ice-crust; and scarcely a day passed without sleet or snow. On the 8th they left the sand bank, the storm having at length subsided, but on the 9th were dismayed at finding the new ice forming in their rear. While putting forth every effort to reach the river, the boat was crushed between two ice-floes, and with difficulty was got ashore, disabled and worthless. Making a hand-sledge they pushed forward on the 10th; but on the morning of the 11th, Middendorf was unable to proceed. But with a heroism worthy of an Arctic explorer, he ordered his companions forward to reach, if possible, the Samoyeds before the period of their annual return to the south, and thus save themselves, and possibly him too, if they should fall in with the nomads soon. The scant supply of provisions, supplemented by Middendorf's dog, was divided into five equal rations, and his four companions set out, leaving the brave Middendorf to struggle alone with his disease, and the surrounding desolation.

"My companions had now left me twelve days," says Middendorf; "human assistance could no longer be expected; I was convinced that I had only myself to rely upon, that I was doomed, and as good as numbered with the dead. And yet my courage did not forsake me." Thus he lay three days longer until his sad thoughts threatened to unseat his reason, when, as he says, a saving thought flashed upon him. "My last pieces of wood were quickly lighted, some water was thawed and

warmed; I poured into it the spirits from a flask containing a specimen of natural history, and drank. A new life seemed to awaken in me; my thoughts returned again to my family. Soon I fell into a profound sleep —how long it lasted I know not—but on awakening, I felt like another man, and my breast was filled with gratitude. Appetite returned with recovery, and I was induced to eat leather and birch-bark, when a ptarmigan fortunately came within reach of my gun. Having thus obtained some food for the journey, I resolved, though still very feeble, to set out and seek the provisions we had buried. Packing some articles of dress, my gun and ammunition, my journal, etc., on my small hand-sledge, I proceeded slowly, and frequently resting. At noon I saw, on a well-known declivity of the hills, three black spots which I had not previously noticed, and as they changed their position, I at once altered my route to join them. We approached each other, and—judge of my delight—it was Trischun, the Samoyed chieftain whom I had previously assisted in the prevailing epidemic, and who now, guided by one of my companions, had set out with three sledges to seek me. Eager to serve his benefactor, the grateful savage had made his reindeer wander without food over a space of one hundred and fifty versts (eighty-seven miles) where no moss grew.

“I now heard that my companions had fortunately reached the Samoyeds, four days after our separation; but the dreadful snowstorms had prevented the nomads from coming sooner to my assistance, and had even forced them twice to retrace their steps. On September 30th the Samoyeds brought me to my tent; and on October 9th we bade the Taimur an eternal farewell. After five months we hailed with delight, on October 20, the verge of the forest, and on the following day we reached the smoky hut on the Boganida where we had left our friends.”

Middendorf fell short nearly two degrees of reaching the north point of the peninsula, and of Asia, called Cape Chelyuskin, in honor of a Russian explorer of that name who reached it by land in 1742. Six years earlier Prontschischev had reached within a few minutes of it, and one of the Laptews, in 1739, within 50', in their coasting vessels. But even had there been time to make the trip, Middendorf might have pre-

ferred to spend it in extending his observations on the fauna and flora, the meteorology and climate of Taimur. It will be remembered that these, and not geographical discovery, were the objects of his expedition.





PART IV.

FRANKLIN AND SEARCH VOYAGES.



*"On the frozen deep's repose,
'Tis a dark and dreadful hour,
When round the ship the ice-fields close,
And the northern night-clouds lower.
But let the ice drift on!
Let the cold blue desert spread;
Their course with mast and flag is done—
Even there sleep England's dead."*

—MRS. HEMANS.

CHAPTER XLI.

**FRANKLIN'S LAST VOYAGE—TEMERITY OF FRANKLIN AND PARTY—
CHOSEN BY THE ADMIRALTY—THE EREBUS AND TERROR—LAST
INTELLIGENCE OF FRANKLIN—FRANKLIN'S FAVORITE THEORY
—THE SEARCH—COMMENTS ON ARCTIC SCIENCE.**

Surely “through desire, a man having separated himself, seeketh and intermeddleth with all wisdom.”

When the wise man, three thousand years ago, made this profound deliverance concerning the investigating spirit of mankind, he certainly must have cast a prophetic eye down the ages, and anticipated the march of science and the coming tread of universal knowledge. Doubtless, he saw the New World discovered, and peopled with an enterprising race of beings, whose aims and intelligence were not restricted to the observance of a few lifeless forms. He must have seen Bacon, who, as the disciple of forgotten Aristotle, set in motion the now irresistible ball of inductive science, to be given a fresh impulse by its more modern exponent, J. Stuart Mill. Possibly, too, he descried the inventions of our recent times, and the crowning triumphs of Edison, Bell and Gray. At any rate, enough has long ago been realized to justify the wise old sage's encomium upon human enterprise. Men, for the sake of the truth, have separated themselves, not only in the sense of being students of it, but in some cases this separation has been literal and complete, involving total isolation from society and its advantages, and often a sacrifice of life itself.

It is, perhaps, difficult for the average mind to appreciate the feeling which prompts men to suffer in the cause of some favorite theory. It is easy to understand the impulses which induce men to fall for the sake of their firesides, or to bleed for the honor of their native country. The one feeling is the domestic or paternal instinct which naturally shields its own; and the other is the almost universal sentiment of patriotism. But

to walk forward into death or danger for the sake of demonstrating a truth whose very utility is not made wholly certain, implies a feeling not so common, nor so easy to analyze.

Such a spirit was that shown by Sir John Franklin and his faithful followers, in their last eventful voyage, which, so far as the limited data will permit, we are now about to describe. It has already been related how Franklin, from the son of a poor freeholder, and the position of midshipman, rose successively to the ranks of Lieutenant and Captain, and finally, having been chosen a member of the Royal Society, was knighted and became a rear-admiral of the Royal Navy. His international renown appears from the fact that the French Geographical Society awarded him their gold medal, and at a subsequent time elected him corresponding member of the Institute of France. The Greek nation, also, whom he had materially aided in their war of liberation, gave him formal and substantial token of their appreciation and gratitude. In 1836 he was appointed Governor of Tasmania, or Van Diemen's Land, as it was then called, and although political difficulties disturbed his administration to some extent, his wise and moderate control secured for him the warm approbation of the government, and the lasting affection of his colonists. The latter established a college and a philosophical society in his honor; and years after they testified that the memory of his rule was still cherished by subscribing £1,700 toward an expedition designed by Lady Franklin for his rescue or discovery.

The belief in a Northwest Passage, which had in the early part of the nineteenth century been merely vague or conjectural, had now grown into a settled conviction. Franklin's own researches had done much to eliminate the mysteries which had hitherto enshrouded the northern coast of the New World, and only the last few links in the chain of discovery were supposed to need forging before the long cherished project could receive its full realization in the proof of a passage from Baffin's Bay to Behring's Strait.

In 1845, accordingly, the British Admiralty organized a new expedition to make another attempt at the Northwest Passage. The leading scientific men of England had been urging the step for more than a year,



BUST OF FRANKLIN.

and the necessary appropriation having finally been made, definite steps were soon taken to begin the enterprise. During the time which the admiralty had taken to choose a commander, Sir John, who had lately arrived from Tasmania, was heard to remark that he thought it due to him as the senior Arctic explorer of England.

'As soon as it was known that he would go if asked, the admiralty were of course only too glad to avail themselves of the experience of such a man; but Lord Haddington, with that kindness which ever distinguished him, suggested that Franklin might well rest at home on his laurels. 'I might find a good excuse for not letting you go, Sir John,' said the peer, 'in the telling record which informs me that you are sixty years old.' 'No, no, my lord,' was Franklin's rejoinder, 'I am only fifty-nine.' Before such earnestness all scruples vanished. The offer was officially made and accepted. To Sir John Franklin was confided the Arctic expedition, consisting of H. M. S. Erebus, in which he hoisted his pennant, and H. M. S. Terror, commanded by Capt. Crozier, who had recently accompanied Sir James Ross in his wonderful voyage to the Antarctic Seas.'

The two vessels were thoroughly refitted and furnished with all that experience could suggest as useful or necessary. Provisions for three years were made ready, and a crew of over a hundred men were chosen from the very cream of the British navy. Among the officers were Lieuts. Gore and Fitzjames, whose genius and energy stamped them as no common officers.

The ships left England in May, and were known by the third of July to have reached a point near Disco, Greenland, where a small ship which had accompanied them, took on board the last letters of the officers and crews for home. They were afterward seen in the latter part of July by a whaler, who described them as "moored to an iceberg, waiting for a chance to enter Baffin's Bay." From that day till the present not one of that gallant band has ever been seen alive, and not till years afterward was anything definite discovered concerning their fate. All that historians can do is to follow the ships in the imagination by the aid of the plans laid down beforehand for the guidance of the

party; to conjecture as best they may concerning the particular circumstances of those last trying hours; and to relate the sad stories of those whose mournful discoveries complete the melancholy scene.

From the instructions of the admiralty, and from the scanty record left by the lost explorers, we are able to trace with comparative assurance the course of Franklin after he entered upon the special object of the expedition. We find that, after the last intelligence of Sir John Franklin was received, bearing date of July, 1845, from the whalers in Melville Bay, his expedition passed on to Lancaster Sound and entered Wellington Channel, of which the southern entrance had been discovered by Sir Edward Parry in 1819. The Erebus and Terror sailed up that strait for 150 miles, and reached, in the autumn of 1845, the same latitude that was attained eight years subsequently by H. M. S. Assistance and Pioneer. Whether Franklin intended to pursue this northern course, and was only stopped by ice in the latitude of 77° N., or purposely relinquished a route which led so far away from the already known seas off the coast of America, must be a matter of speculation; but the record assures us that the expedition having accomplished this examination, returned southward from latitude 77° , which is at the head of Wellington Channel, and re-entered Barrow's Strait by a new channel between Bathurst and Cornwallis Islands.

It was a favorite theory of Franklin's that the best way of securing a passage from the Atlantic to the Pacific was by following as nearly as possible the coast line of North America. Indeed, it was his opinion, and subsequently that of McClintock, that no passage by a ship can ever be accomplished in a more northern direction. Since, therefore, when Franklin sailed in 1845, the discovery of a Northwest Passage was reduced to the finding of a link between Parry's discoveries on the east and his own on the west, it is probable that, in obedience to orders, he steered for the southwest. Passing, as is thought, down Peel's Strait in 1846, and reaching as far as latitude $70^{\circ} 5'$ north, and longitude $98^{\circ} 23'$ west, where the ships, as the record shows, were beset, it is clear that he, who with others had previously ascertained the existence of a channel along the coast of America, with which the sea wherein he met his death

had a direct communication, was the first real discoverer of a Northwest Passage. As will be seen in another place, the gallant McClure had worked out another passage long before the course of Franklin came to light. This fact, while it is a worthy source of honor to the adventurous Irishman, must not be allowed to detract from the fame of those who, as their epitaph fitly says, "Forged the last link with their lives."

The account which it is possible to give of the last days of Franklin is, of necessity, very limited. As the expedition was provisioned for three years, a year and a half elapsed before any anxiety was felt concerning its welfare; but after a council of naval officers had been held, it was decided that, should no news arrive that summer, preparations should be made for its relief. As is generally known, the British Government afterward fitted and sent out a whole series of vessels, and spent immense amounts of money in prosecuting the search. Lady Franklin spent the greater part of her private fortune, and the United States came bravely to the front in the Grinnell expeditions. Aside from their importance in relation to the grand object, these expeditions added immensely to geographical knowledge, and in general, were invaluable for their contributions to science.

An account, as extended as space will permit, will be given of each of these daring ventures in their turn.

The writer deems it proper at this point, to comment briefly upon the results to the world at large of the voyages of Franklin and others. The young student and the unthinking of any age, are apt to look upon these discoveries as isolated in time and causal relations from the everyday knowledge which they possess on these subjects, and which they easily glean from the popular text-books. They should remember that the first certain knowledge of these regions was gained by these self-sacrificing men, and many of the now well-known individual facts were gathered by them under the trying circumstances which we have been describing. The result of Franklin's researches for example are not alone nor chiefly seen in the account of his voyages, but in the map, perfected by his bravery and diligence, from which the school-boy of every nation cons his lesson. The conclusions on the subject of terrestrial

magnetism are not alone found in the reports to the admiralty, but the facts discovered and principles deduced form part of the physics and the astronomy of the common school and college. Observations taken here upon the subject of botany have not their sole lodging-place in the archives of the Royal Society. They may be formulated and perhaps verified by Wood, Gray, and other modern disciples of Linnæus; but it was the strong faith and daring of Kane and Richardson, that first plucked the flowers, and made the facts respecting them take their places among the vast assemblage of Nature's witnesses. The relation between the lives of these men and the individual thought and action of the present time, is far more real and intimate than is commonly admitted. Hence the propriety of becoming acquainted with these heroes, in the story of their careers; enabling us to give them due homage, and stimulating us as they have done, to sacrifice something for the common brotherhood.



CHAPTER XLII.

**SEARCH FOR FRANKLIN—LAST NEWS—THREE EXPEDITIONS PLANNED
—EXPEDITION UNDER RICHARDSON AND RAE—INSTRUCTIONS OF
THE ADMIRALTY—ARRIVE IN AMERICA—A TROUBLESOME SONG-
STER—METHY PORTAGE—A CACHE—MENDACIOUS ESQUIMAUX.**

The prolonged absence of Franklin, and the entire lack of knowledge regarding his condition and exact whereabouts, at last gave rise, as we have seen, to serious apprehensions on the part of the admiralty. It was true the last letters received from the party were of the most hopeful, buoyant tone. The expedition, it will be remembered, sailed from England on the 19th of May, 1845, and early in July had reached Whale-fish Island, near Disco, on the Greenland coast of Davis' Straits, where, having found a convenient port, the transport which accompanied it was cleared and sent home to England, bringing the last letters that have been received from the officers or crew. The following extract of a letter from Lieut. Fairholme of the Erebus, will serve to show the cheerful anticipation of success which prevailed throughout the party and the happy terms on which they were with each other.

“ We have anchored in a narrow channel between two of the islands, protected on all sides by land, and in as convenient a place for our purpose as could be possibly found. Here we are, with the transport alongside, transferring most actively all her stores to the two ships. * * *

“ Of our prospects we know little more than when we left England, but look forward with anxiety to our reaching 72° , where it seems we are likely to meet the first obstructions, if any exist. On board we are as comfortable as it is possible to be. I need hardly tell you how much we are all delighted with our captain. He has, I am sure, won not only the respect, but the love of every person on board by his amiable manner and kindness to all; and his influence is always employed for some

good purpose, both among the officers and men. He has been most successful in his selection of officers, and a more agreeable set could hardly be found. Sir John is in much better health than when we left England, and really looks ten years younger. He takes an active part in everything that goes on, and his long experience in such services as this makes him a most valuable adviser."

Letters from most of the other officers, written in a similar tone, were received in England at the same time with the above. An extract of a letter from Franklin himself to Col. Sabine, deserves to be quoted, as expressing his own opinion of his resources, and also his intention of remaining out more than a second winter, should he not be successful before. The letter is dated from Whalefish Islands, July 9, 1845; and after noticing that the Erebus and Terror had on board provisions, fuel, clothing, and stores for three years complete, from that date, he adds, "I hope my dear wife and daughter will not be anxious if we should not return by the time they have fixed upon; and I must beg of you to give them the benefit of your advice and experience when that time arrives, for you well know that, without success in our object, even after the *second winter*, we should wish to try some other channel should the state of our provisions and the health of our crews justify it."

The above extracts will give a fair idea of the prospects and hopes of the parties when heard from the last time before entering Barrow Strait. But nearly two years having elapsed without tidings, certain experienced navigators, among them Capt. John Ross, expressed a fear that the party had become entangled in the northwestern ice, whence they could not advance nor retreat. The Lords Commissioners of the Admiralty, though judging that the second winter of Sir John's absence was too early a period to give rise to well-founded apprehensions for his safety, lost no time in calling for the opinions of several naval officers who were well acquainted with Arctic navigation, and in concerting plans of relief to be carried out when the proper time should arrive.

It is impossible to give, in our limited space, even a synopsis of the opinions which were the response to this call on the part of the Lords of Admiralty. It must suffice to say that after weighing all suggestions

low, specimens of the plants and rocks were secured and placed in their little museum.

Many things, curious and unwonted, were noted by Dr. Richardson, who kept a faithful diary of each day's proceedings, and of each new object discovered and examined. Ornithology as well as other branches of science, received his attention.

"Constantly," says his journal, "since the 1st of June, the song of the *Fringilla leucophrys* has been heard day and night, and so loudly, in the stillness of the latter season, as to deprive us at first of rest. It whistles the first bar of 'Oh, dear! what can the matter be?' in a clear tone, as if played on a piccolo fife; and, though the distinctness of the notes rendered them at first very pleasing, yet, as they haunted us up to the Arctic circle, and were loudest at midnight, we came to wish occasionally that the cheerful little songster would time his serenade better. It is a curious illustration of the indifference of the native population to almost every animal that does not yield food or fur, or otherwise contribute to their comfort or discomfort, that none of the Iroquois or Chippeways of our company knew the bird by sight, and they all declared boldly that no one ever saw it. We were enabled, however, after a little trouble, to identify the songster, his song, and breeding-place."

On the 27th of June the party came to the vicinity of Methy Portage referred to, as the reader will remember, in one of the first of Franklin's voyages. An Indian had built a home at the mouth of the Methy River, and was in the habit of letting horses to the Hudson's Bay Company for facilitating the portage of goods. Our party of explorers, however, received from him the very unpleasant information that his horses had all died from murrain, and that the Company's animals were also all disabled. This news was received by Richardson with great disappointment, for he had planned to reach the sea as soon as possible, so as to explore Wollaston Land (across the strait from the mouth of the Coppermine) this season. This new circumstance seemed to represent a delay of several weeks, and his scheme was likely to be thwarted. Coming up with Mr. Bell before the portage was reached, he found several of his (Bell's) men enfeebled and lame from previous

labor at portages, and unfitted for rendering any assistance. Richardson's own voyagers, too, had been engaged with the understanding that they were to 'return as soon as Bell's boats were overtaken. With a promise of extra pay, however, they were induced to stay and assist in the conveying of the goods across to the next attainable water—a distance of about fourteen miles.

In the equal distribution of the baggage, each man had five pieces of ninety pounds' weight each, exclusive of his own bedding and clothing, and of the boats, with their masts, sails, oars, anchors, etc., which could not be transported in fewer than two journeys of the whole party. The practical Canadians could carry two pieces of ninety pounds at each trip on such long portages, and in shorter ones even a greater load than this. The Europeans, however, could carry only one piece, and thus had to make five trips with the baggage besides two with the boats. Thus delayed, little prospect was left of completing their sea-voyage this season.

With the usual quota of adventures the boats at last reached Point Separation—marking the parting of the two principal mouths of the MacKenzie, on the 31st of July. Here, according to instructions they halted to bury a case of pemmican. The pit was dug at the distance of ten feet from the best-grown tree on the point, and besides the food, there was placed in it a bottle containing a memorandum of the objects of the expedition, and such other information as it was thought would be useful to other parties, should they happen to reach this river. This point will be remembered as the place of separation of the parties of Franklin and Richardson in 1826, when the former explored toward Behring's Strait, and Richardson examined the coast between the MacKenzie and Coppermine. Apropos of performing his duty at this time and place, Richardson says:

"We were then full of joyous anticipation of the discoveries that lay in our several paths, and our crews were elated with the hope of making their fortunes by the parliamentary reward promised to those who should navigate the Arctic Seas up to certain meridians. When we pushed off the beach on the morning of the 4th of July, 1826, to follow our separate routes, we cheered each other with hearty good will, and no misgivings.

Sir John's party fell some miles short of the parliamentary distance, and he made no claim. My party accomplished the whole space between the assigned meridians, but the authorities decided that the reward was not meant for *boats*, but ships."

Having finished operations at the *cache*, the voyage was resumed, and the boats passed down the eastern branch of the MacKenzie. Watch now began to be kept for Esquimaux, for Richardson's previous experience taught him that they were in the habit of frequenting the coast at this time of year. About two hundred natives were soon seen



ESQUIMAUX OF NORTH AMERICA.

paddling out in their kayacks and oomiaks. The boatmen were cautioned to keep close together so as not to allow the Esquimaux to overpower any one if they should seem so disposed. A lively barter was carried on with them by Richardson and Rae, who traded all manner of iron implements for the rude productions of the natives. These were of no use to the whites, but it had been found a plan of policy to make no gift to the Esquimaux, as the American tribes regarded it as a mark of inferiority to receive a gift.

The inquiries of the party were of course chiefly directed to obtaining information of the missing vessels, but the Esquimaux, one and all, denied ever having seen any whites, or heard of any ships along the

coast. None of them would acknowledge being present at the time when the attempt was made to plunder Franklin's boats in 1826; perhaps the circumstances of that encounter prevented them from confessing the connection of themselves or their relatives with that uncompleted tragedy. One man in answer to the inquiry for white men, said, pointing to Richards' Island—a small islet just at the mouth of the MacKenzie—“A party of white men are living there.” This was known to be a falsehood, as the commander had landed there the day previous without having discovered any traces. The savage's motive was evidently to induce them to land, which they had been invited to do from the first of their interviews with the natives. According to Richardson, neither the Esquimaux, nor certain of the Indian tribes of Arctic America feel the least shame in being detected in a falsehood, and invariably practice it if they think that thereby they can gain any of their petty ends. Even in their familiar intercourse with each other the Indians seldom tell the truth in the first instance, and if they succeed in exciting admiration or astonishment, their invention runs on without end. From the manner of the speaker, rather than by his words, is his truth or falsehood arrived at; and often a continuous questioning is necessary to elicit the facts.

No satisfactory information having been gathered from the natives, the journey eastward along the coast was continued; landings being made sufficiently often to make complete and thorough both the search for the lost fleet, and the scientific examination of the country.



CHAPTER XLIII.

RICHARDSON'S JOURNEY TOWARD THE COPPERMINE — AN EARLY WINTER—A REASONABLE THEORY—CONJECTURES—RETURN TO FORT CONFIDENCE—PLAN FOR THE SUMMER—RAE'S EXPEDITION — CONFER WITH ESQUIMAUX—RETURN TO THE COPPERMINE—INTERPRETER DROWNED—LOST IN THE WOODS—APPROVAL OF THE ADMIRALTY.

As has already been intimated, Dr. Richardson's account of his journey abounds with vivid pictures of the natural features, productions, and people, of the regions through which he passed. Rocks, flowers, trees and natives were all carefully studied, and their habits, peculiarities and anomalies faithfully portrayed. In fact, most Arctic navigators have done the same, and it is to their energy, zeal and ability that Arctic science, in its various branches, owes its present advanced status. As the purpose of the present volume, however, is not to treat of natural history, nor geology, as such, an incidental mention of the facts relative to these sciences must suffice.

Dr. Richardson had hoped to reach the Coppermine River, and from there to cross over and explore Wollaston Land the first summer. He was disappointed to find that the new ice began to form early in September, so as not only to impede his progress by its own resistance, but by cementing together in impenetrable solidity the immense floes of pack-ice, which had not succeeded in forcing their way through the narrow channel between the continent of America and the islands, or lands on the north. The unavoidable conclusion of the sea-voyage, while still at some distance from the Coppermine River, was contemplated by the commander and the entire crew with the deepest regret. It had been hoped, that even if no time was left to explore Wollaston Land, the Coppermine, at least, could be reached, and the boats left somewhere along

its banks, where they would be available for another summer's use. But if they were now abandoned on the coast, it could not be expected that they would escape the searches of the hunting parties who would follow up the explorers' footmarks, and who were certain to break up the boats for the copper fastenings. The unusual lateness of the spring, and the unexpected delay at Methy Portage, had made the arrival at the sea later than had been anticipated, and in a region where summer holds sway only six weeks, even a few days are often of the utmost importance. Notwithstanding the brevity of the summer, neither that, nor the lateness of their arrival, would have prevented the party from crossing to Wollaston Land, had it been possible to effect such a crossing. The only hindrance was the unnavigable condition of the close-packed ice-drift. A flat, smooth floe is often of assistance in protecting a vessel from pressure, and, in case of extreme necessity, a boat can be dragged over its surface with good headway; but the ice that obstructed the progress of our explorers at this time, was composed of hummocky pieces of irregular shape, and consequently ready to turn over and crush boat or person upon the least disturbance.

Richardson plainly remembered that on both of his former voyages to these seas, neither he nor Franklin had found this condition present in the channels under consideration. On those occasions only small packs were visible here and there, the general openness of the sea affording ample opportunity for passage up to a later period than the 1st of September. In seeking a reason for the existing state of affairs, Richardson found himself able to establish a reasonable conjecture regarding the prolonged absence of the missing crew.

The theory of a cycle of good and bad years had already been mooted by several meteorologists, and observations on the temperature of a series of years had seemed to confirm its reasonableness. Eighty years' observation at London showed that groups of warm years alternate with groups of cold ones in such a way as to render it most probable that the mean annual temperatures rise and fall in such a manner as may be represented by a series of elliptical curves, corresponding to periods of from twelve to fifteen years; although local or casual circumstances

cause the means to change in particular years, and, indeed, in particular places also.

The conjecture, then, was that Franklin entered Lancaster Sound at the close of a group of favorable years, when the ice was in the greatest state of diminution, and that, having boldly pushed on in one of the closing years of the favorable cycle, unexpected ice was produced during the unfavorable years following, and thus an insurmountable barrier to his return was made.

This conjecture, while it could not, of course, descend to detail in this particular case, seems to have been the correct one; for (to anticipate our narrative) it was afterward found that Franklin's vessels actually were beset by ice in September, 1846, and that too in a much lower latitude than was at this time reached by Richardson. It will be found, also, that the explorers for the next few years, from 1848-57, found the springs very backward, and the winters exceedingly long and severe. The experiences of Kane in northern latitudes for three different winters may be hereafter cited as cases in point. We have here to do, however, not with theories, but with facts, and the practical problem of how to find Franklin and convey relief to him, was the all important question which presented itself to the admiralty and those representing them upon the seas.

As we have seen, circumstances compelled the party to desist from further undertakings this fall, and preparations were made to journey by land back to Ft. Confidence, where Mr. Bell was supposed to be preparing winter quarters for the voyagers. Burying a quantity of pemmican, and also of ammunition, near the places where the boats were to be left, they started on the third of September, carrying everything which their strength would permit. After a tedious journey, made more so by the heavy burdens which they bore, they arrived at Ft. Confidence on the 15th. Here they found Mr. Bell, who had reached the site on the 17th of August, and had immediately set to work. Since that time he had built an ample storehouse, two houses for the men, and a dwelling house for the officers, consisting of a hall, three sleeping apartments, and a storeroom. Dispatches and letters were now made ready, and on

the 18th were taken in charge by men chosen for the purpose, to be conveyed to the British settlements.

Here, then, at Ft. Confidence, the winter of 1848-9 was passed; nothing of striking importance occurring to break the monotony of a characteristic season in the wilds of North America.

The return of summer brought with it the necessity of deciding upon some course of action for the further prosecution of the search. It was still thought best to visit Wollaston Land, but in the absence of their boats, the method of procedure grew into a perplexing problem. Had they succeeded in taking their boats up the Coppermine, beyond the reach of the Esquimaux, according to their expectations when the plan of search was formed, the voyage might have been resumed in the summer of 1849, with two or three boats; and in that case, the whole party might have gone, and so have aided one another among the floes. But as they had been compelled to leave their craft in September, without the smallest hope of its being found again in a seaworthy condition, and having only one boat remaining that could be employed on the service, it became necessary to determine which of the two leading officers, Dr. Richardson or Mr. Rae, should take charge of that vessel and the small party it could contain. Setting aside personal considerations, and looking only to the means of providing for the examination of as large a portion of the Arctic Sea as could be accomplished, Dr. Richardson had not much hesitation in deciding in favor of Mr. Rae. His ability and zeal were unquestionable; he was in the prime of life, and his personal activity, and his skill as a hunter, fitted him peculiarly for such an enterprise.

Mr. Rae had already during the winter explored the country between Ft. Confidence and the Coppermine River, in order to select the best route for dragging the boat over in the spring. In April he conveyed provisions, boat-stores, and other necessaries across the country to one of the streams tributary to the Coppermine, and a convenient place for landing, in the event of the ice breaking up. These he left in charge of two of his men and two Indian hunters, who were to be engaged in the meantime, in obtaining and curing the flesh of the reindeer and musk-ox, for summer use. Having to wait many weeks for the opening

of the rivers, it was the middle of July before the sea was reached, and as the ice in the channels was still impenetrable, several weeks more were occupied in exploring the various rivers which had their mouths near the point where the Coppermine finds an outlet.

Their advance along the coast, when once it began, was very slow, owing to the still comparatively impenetrable condition of the ice; and the place where the boats were left the preceding autumn, was not reached until the 24th of July. The boats were found much broken up by the action of the ice, which had invaded the inlet where they were left, and also by the Esquimaux, who had dismantled them of large portions of woodwork, that they might obtain the iron and copper used in their construction. The tents, oil-cloths, and part of the sails still remained uninjured, and were made extremely useful to Mr. Rae, who was ill supplied with these articles. The *cache* of pemmican and powder was also untouched, its covering of snow probably causing it to escape detection.

Passing on to the west, they soon came to the point where the search had been concluded the previous season, being also the most convenient though not the nearest point from which Wollaston Land could be reached. Indeed, it was not only unnecessary to go further, but also impossible; for the junction here of the rough hummocks on one side and the steep cliffs on the other, made further thought of passage useless. They pitched their tents on the top of a cliff and waited for the first favorable change in the sea.

A few days after this the Esquimaux interpreter and one of the men, when some distance inland looking for game, overtook five Esquimaux, who were traveling toward the interior with a load of fish. From these it was found that the sea-ice had begun breaking up only the day before the party had arrived at the mouth of the Coppermine. These natives also testified that they had been, during the winter, in company with the Esquimaux of Wollaston Land, and that the latter had never seen Europeans, large ships, or boats.

Their detention here was very long and tedious. Several gales of wind occurred from the south, but the space of open water was so small



BEAR ATTACKED BY WOLVES ON THE ARCTIC COAST.

that little effect upon the ice was observable. The situation was tantalizing in the extreme to all the party. Occasionally at the time of the tide a lead of water would appear, a mile or so in length, and wide enough to admit of the passage of a boat. Everything would be at once prepared for launching; when suddenly, some adverse circumstance would cause the opening to grow narrow, until no longer safe for boat or man to venture in.

The ice continued drifting to and fro with the tides, without separating sufficiently to allow of passing among it, till the 19th of August, when there seemed to be more open water to seaward than had yet been seen. After waiting for some hours for a troublesome pack near the shore, to disperse, they at last pushed off; and after many narrow escapes from being squeezed, they at last reached comparatively open water, where they had soon to use their oars. They had pulled more than seven miles, when they came to a stream of ice, so close packed and so rough that they could neither pass over nor through it. Under these circumstances it was thought advisable to return to the main shore, where they landed the next day. On the very next day wind began to blow from the northeast, and in four hours not a perch of open water was to be seen—nothing but a continuous sheet of white, solid drift ice.

As the fine weather had now evidently broken up, no course remained but to retreat to the Coppermine and Ft. Confidence. An accident occurred in ascending the Coppermine which had even more effect in dampening the spirits of the party than the failure to reach Wollaston Land. They had successfully ascended the river to what was known as the "Bloody Falls," marking the beginning of a series of intricate and dangerous rapids. It had been the custom, in former ascents of these rapids, to draw the boats along the bank, till the most difficult portion was passed, and then to launch the boat and tow it up over the remainder of the distance. As the boat of our voyagers was exceedingly worn and unsubstantial, it was thought best to do the same in this case. All that appeared to be of any difficulty was easily accomplished, and there was only one short place to be ascended, which was so smooth that a loaded boat might have passed it; here, however, from some unaccountable cause, the

steersman was seized with a sudden panic, and called to those towing the boat to slack the line. This was no sooner done sufficiently to allow him to get firm footing, than he leaped on shore, followed by the bow-man, and allowed the boat to sheer into the current, when the line broke, and the boat was hurried down stream into an eddy. To this point Rae and Albert, the interpreter, ran, and stationed themselves at two points of rock near which the wreck would pass. Misunderstanding an order of the commander, the Esquimaux leaped into the boat when it was near enough, and both were swept away together. The native was finally thrown out and sank, not to appear again. The occurrence was much regretted, as the young man was greatly liked for his activity, lively and amiable disposition, and extreme goodness.

Rae's failure to cross to Wollaston Land, is attributable, not at all to lack of skill or bravery—but to the impassable condition of the ice in the strait which it was necessary for him to traverse. His mortification from his failure was very keen, and much more severe than he saw fit to display in his official report. He was, in reality, a very brave and intelligent man, and received, as he deserved, the approbation of the British Government.

Having now finished the story of Mr. Rae's search voyage, we revert to the experiences of Dr. Richardson, and the remainder of the party, during the summer of 1849. On the 7th of May they took their leave of Rae, who had not yet left Ft. Confidence to descend the Coppermine, and proceeded to Ft. Franklin, on the opposite side of Great Bear Lake. As they anticipated some difficulty in navigating Bear Lake River, which flows out of Great Bear Lake into the MacKenzie, a few miles below Ft. Norman, a barge had been ordered which was to meet them at the head of the river. They waited over a month for the barge when some men appeared who reported that the river was not yet open. They now decided to descend the river at once, and send the barge, back for the stores. Most of the expedition started in a fishing-boat; but two of them were instructed to follow along the bank of the river on foot, each carrying with him his own bedding and provision. One of the men, named Brodie, struck into the interior to avail himself of a

short cut, and not soon rejoining the party, was supposed to be lost, and considerable apprehension was felt for his safety. It was afterward found that, when he detected the fact of his walking in the wrong direction, he began to run, as is usual in such cases, till he came to the bank of a tortuous stream, and being a fearless swimmer, swam across it, carrying his clothes on his head. The river coming again in his way, he crossed it a second time in like manner, but on the last occasion his bundle slipped away from him, and floated off, while he regained the bank in a state of perfect nudity. After a few moments' reflection he came to the conclusion that without clothes he must perish, and that he might as well be drowned in trying to recover them, as to attempt proceeding naked. On this he plunged in again, and this time succeeded in landing safely with his habiliments. He soon discovered his whereabouts, and rejoined the party.

This adventure is related to illustrate what a traveler in these wilds was liable to encounter, and as an example of what happened to all of the seamen of this expedition. None of them could be taught that they were liable to such accidents, till they learned it by experience. One man who thus strayed was, when found, contentedly steering for the moon, which being near the horizon, and streaming red through the forest, was mistaken by him for the fire of the men's bivouac.

The ascent of the MacKenzie, and the subsequent journey to Canada, and finally back to Great Britain, was not attended with any incident worthy of note, and the party of Richardson landed at Liverpool on the 6th of November, after an absence of nineteen months, twelve of them passed in incessant traveling. Richardson made no delay in presenting himself to the admiralty, and making a full report of his proceedings, which elicited from their lordships a uniform expression of approbation. His narrative was afterward published in book form, which volume, with its rich fund of incident and adventure, and thorough analysis of all observed phenomena, stands among the classics of Arctic literature.

CHAPTER XLIV.

EXPEDITION UNDER SIR JAMES C. ROSS—INSTRUCTIONS OF THE ADMIRALTY—PREPARATIONS—UPERNAVIK—IN A PACK—MAXWELL BAY—A NOVEL EXPEDIENT—SPRING OCCUPATIONS—THREE SURVEYING PARTIES—AN ARCTIC HOUSE—WELLINGTON CHANNEL—NIPS—IMPRISONED—A MIRACULOUS ESCAPE—A FORCED RETREAT—COMMENTS ON ARCTIC NAVIGATION.

Prominent among those who engaged in the discussion concerning the probable whereabouts of Franklin, and in the eventual efforts made to relieve that distinguished navigator, was Sir James C. Ross, of whom special mention has already been made. The three expeditions planned in 1847, and executed in 1848, have been referred to in a preceding chapter. They were based mainly upon the instructions under which Franklin sailed, upon known conditions existing in the northern seas, and upon the conjectured course of Franklin, in case of failure or emergency.

The expedition which was regarded at the time as of most importance, was the one destined to Lancaster Sound. It had for its object to take up the route followed by Franklin, and by diligently searching for any signal-posts he might have erected, to trace him out and carry the required relief to his exhausted crews. For such an enterprise as this, none were thought to be better fitted by ability and experience than the daring commander whose name heads the chapter. In company with his distinguished uncle, he had already traversed many portions of the globe, and had acquainted himself extensively and in a practical manner with all branches of the nautical science. Pertinent to this particular undertaking, he had planted the British flag upon the magnetic pole, and had learned by experience the peculiarities of Arctic sailing, and the manœuvres necessary among the ice-barriers of the north. Considering

these qualifications, as well as the practical wisdom exhibited in Ross' discussion of the then all-absorbing question, the admiralty had no hesitation in placing him at the head of this important expedition.

The facts upon which his plan was based will sufficiently appear from the following quotations, drawn from his letter of advice to the admiralty: "As vessels destined to follow the track of the expedition must necessarily encounter the same difficulties, and be liable to the same severe pressure from the great body of ice they must pass through in their way to Lancaster Sound, it is desirable that two ships of not less than 500 tons be purchased for this service, and fortified and equipped in every respect as were the Erebus and Terror for Antarctic seas."

"Each ship should, in addition, be supplied with a small vessel or launch of about twenty tons, which she could hoist in, to be fitted with a steam engine and boiler of ten-horse power, for a purpose to be hereafter noticed.

"The ships should sail at the close of April, 1848, and proceed to Lancaster Sound with as little delay as possible, carefully searching both shores of that extensive inlet, and of Barrow's Strait, and then progress to the westward.

"As soon as the formation of water along the coast between the land and the main body of the ice admitted, the small steam launch should be dispatched into Lancaster Sound, to communicate with the whale ships at the usual time of their arrival in those regions, by which means information of the safety or return of Sir John Franklin might be conveyed to the ships before their liberation from their winter quarters, as well as any further instructions the Lords Commissioners might be pleased to send for their future guidance.

"The easternmost ship having been safely secured in winter quarters, the other ship should proceed alone to the westward, and endeavor to reach Winter Harbor, in Melville Island, or some convenient port in Bank's Land, in which to pass the winter.

"From this point, also, parties should be dispatched early in spring, before the breaking up of the ice. The first should trace the western coast of Bank's Land, and, proceeding to Cape Bathurst, or some other

conspicuous point on the continent, previously agreed on with Sir John Richardson, reach the Hudson's Bay Company's settlement of Ft. Good Hope, on the MacKenzie, whence they may travel southward by the usual route of the traders to York Factory, and thence to England, as soon as convenient.

"The second party should explore the eastern shore of Banks Land, and making for Cape Krusenstern, communicate with Sir John Richardson's party on its descending the Coppermine River, and either assist him in completing the examination of Wollaston and Victoria Land, or return to England by any route he should direct.

"These two parties would pass over that space in which most probably the ships have become involved, if at all, and would, therefore, have the best chance of communicating to Sir John Franklin information of the measures that have been adopted for his relief, and of directing him to the best point to proceed, if he should consider it necessary to abandon his ships.

"Other parties may be dispatched, as might appear desirable to the commander of the expedition, according to circumstances; but the steam launches should certainly be employed to keep up the communication between the ships, to transmit such information for the guidance of each other as might be necessary for the safety and success of the undertaking."

This plan has been given thus fully, partly because it foreshadows and explains the voyage about to be described, and partly because it shows with what completeness of detail and grasp of the subject these enterprising statesmen were wont to project their schemes. Owing to varying circumstances all the details of this scheme could not be fully carried out; for, as we have seen already, Richardson did not begin the exploration of Wollaston Land, nor did he have opportunity to communicate with Ross' vessels at all, and it was not until after his return to England that he became fully apprised of the proceedings of that officer, and of the state of the search.

The work of fitting up vessels for the use of the expedition began early in the season of 1848; but as very elaborate preparations were

made, the arrangements were not completed until June. The vessels chosen were the Enterprise, of 450 tons, and the Investigator, of 480 tons burthen, and the combined crews and officers numbered 135 souls. Ross raised his pennant in the Enterprise; and with him were Lieuts. M'Clure, M'Clintock and Browne, of the former two of whom more will be heard hereafter. The Investigator was commanded by Capt. E. J. Bird.

The expedition raised sail on the 12th of June, and reached the Danish settlement of Upernivik, situated on one of the group of Woman's Islands, on the western shore of Baffin's Bay, on the 6th of July. Passing through this maze of islands and ice they were made fast on the 20th to an iceberg aground of Cape Shackleton. During the next few days vessels were towed by their launches through streams of loose ice, and on the 26th of July had reached the three islands of Baffin, in latitude 74° N. The season had now become so far advanced, and progress was so materially impeded by calms and light winds, that hope of accomplishing much before winter should set in, was precluded.

No pains were spared, however, to use every opportunity of pushing forward; and finally, on the 20th of August, a heavy breeze arose which drove the ships through a thick pack of ice, in the midst of which, had they been compelled to stop, both ships would have been inevitably crushed. As it was, some damage was received by them, though fortunately neither was disabled. Having now crossed Baffin's Bay, the ships stood in to Pond's Inlet; but though they kept close to shore, and made repeated signals, no vestige of Esquimaux or other human beings could be seen. On the 26th they arrived off Possession Bay, and a party was sent on shore to search for any traces of the expedition having touched at this general point of rendezvous. Nothing was found here except the paper recording the visit of Sir Edward Parry, on that very day (the 30th) in 1819. They examined the coast westward from this point with great care, and on the 1st of September arrived off Cape York (on Lancaster Sound), leaving here abundant landmarks for the benefit of any who might follow them.

"We now," says Ross, "stood over toward Northeast Cape, until we

IN A LEAD.



came in with the edge of a pack too dense for us to penetrate, lying between us and Leopold Island, about fourteen miles broad; we therefore coasted the north shore of Barrow's Strait, to seek a harbor further to the westward, and to examine the numerous inlets of that shore. Maxwell Bay and several smaller indentations, were thoroughly explored, and, although we got near the entrance of Wellington Channel, the firm barrier of ice which stretched across and had not broken away this season, convinced us that all was impracticable in that direction. We now stood to the southwest to seek for a harbor near Cape Rennell, but found a heavy body of ice extending from the west of Cornwallis Land in a compact mass, to Leopold Island. Coasting along the pack during stormy and foggy weather, we had difficulty in keeping the ships free during the night, for I believe so great a quantity of ice was never before seen in Barrow's Strait at this period of the season."

Fortune at last smiled upon them, and the pack was passed in safety. The ships were secured in Leopold Harbor on the 11th of September—a most desirable situation, being at the junction of the four great channels of Barrow's Strait, Lancaster Sound, Prince Regent Inlet, and Wellington Channel. In case Franklin, having abandoned his ships, should attempt a retreat through any one of the above-mentioned channels, it was plain that he must be apprised of the presence of these ships in the vicinity.

On the very day following this fortunate occurrence, the main pack closed in with the land, and completely sealed the mouth of the harbor. As the beginning of the long Arctic night was near at hand, haste was now made to complete the preparations for the winter. This was accomplished on the 12th of October, about the time when the sun sank out of sight for his long period of alienation. The winter was usefully spent in exploring on foot all the inlets and unknown points in reach, both with reference to discovering traces of Franklin, and also in order to promote the accuracy of the British charts. A novel expedient was adopted for the purpose of extending to the lost navigators knowledge of the proximity of assistance. Ross caught large numbers of white foxes, and, after inscribing copper collars with information concerning the where-

abouts of the ships and the depot of provisions, and clinching them about the necks of the animals, released them. It was known that a party, in case of dearth of food, would naturally seek much after these animals, and it was hoped that the four-footed messengers might be of service in transmitting the desired intelligence. The same idea was used by Parry years before. He had left medals with the Esquimaux on the shores which he visited, so that in case a rescue party was necessary, they might the more readily come upon the desired data.

The months of April and May were occupied by Capt. Ross, Lieut. M'Clintock and a party of twelve men, in examining and thoroughly exploring all the inlets and smaller indentations of the northern and western coasts of Boothia Peninsula, in which any ships might have found shelter. From the high land in the neighborhood of Cape Bunny, Capt. Ross obtained a very extensive view, and observed that the whole space between it and Cape Walker to the west, and Wellington Channel to the north, was occupied by very heavy, hummocky ice.

"The examination of the coast," says Sir James, "was pursued until the 5th of June, when, having consumed more than half our provisions, and the strength of the party being much reduced, I was reluctantly compelled to abandon further operations, as it was, moreover, necessary to give the men the day of rest. But that the time might not be wholly lost, I proceeded with two hands to the extreme south point in sight from our encampment, distant about eight or nine miles."

This extreme point is situated in latitude $72^{\circ} 38'$ N., and longitude $95^{\circ}.40'$ W., and is on the west face of a small elevated peninsula. The state of the atmosphere being, at the time of Ross' observation, peculiarly favorable for distinctness of vision, land of any great elevation might have been seen at the distance of 100 miles. Bearing nearly due south from here, about fifty miles away, Ross discovered the highest cape on the coast. Prince Regent's Inlet was found to be separated from the western seas by a narrow neck of land. Upon examination the ice in this quarter proved to be eight feet thick. A conspicuous cairn of stones was erected in the vicinity, and on the 6th of June they began their return to the ships. Here they arrived after a journey of seventeen days,

so completely worn out by fatigue that for several weeks every man was, for some cause or other, in the doctor's hands. Upon their arrival they found that during their absence Mr. Matthias, the assistant surgeon of the Enterprise, had died of consumption, and that the health of many more was declining.

While Ross was absent Commander Bird had dispatched several surveying parties in different directions. Lieut. Barnard took charge of the first, which proceeded along the north coast of Barrow Strait, crossing the ice to Cape Hurd; Lieut. Browne led a second to the extreme shore of Prince Regent's Inlet; and a third party of six men, conducted by Lieut. Robinson along the western shore of the inlet, extended their examination of the coast as far as Creswell Bay, several miles to the southward of Fury Beach. The house in which Sir John Ross had wintered in 1832-3, was found still standing, together with a quantity of stores and provisions of one of the ships lost in 1827. On opening some of the packages, their contents of flour, peas, and meat were found in a state of excellent preservation, and the portable soup as wholesome as when first manufactured. The labors of all these parties were curtailed and hindered by the sufferings of the individuals from snow-blindness, sprained ankles, and debility.

By these excursions taken in connection with the expedition incidentally referred to of Mr. Rae in 1847, the whole of Prince Regent's Inlet and the Gulf of Boothia was examined, with the exception of 160 miles between Fury Beach and Lord Mayor's Bay, and as there were no indications of the ships having touched on any part of the coast so narrowly traced, it seemed to Commander Ross certain that they had not attempted to find a passage in that direction.

On this account he decided that it was best to press on to the west as soon as his ships should become liberated. The chief hope now centered in the efforts of Sir John Richardson; for he concluded that Sir John Franklin's ships must have penetrated so far beyond Melville Island as to induce him to prefer to make for the continent of America, rather than to seek for aid from the whalers in Baffin's Bay. The crews, weakened by excessive exertion, were now in a very unfit state to

accomplish the heavy labor which they were obliged to undertake, but all hands who were strong enough to use an ax or a saw, were set to work to cut a channel toward the point of the harbor, a distance of somewhat more than two miles. By dint of extra exertion the passage was completed, and the ships cleared on the 28th of August. Before taking final leave of the harbor, however, a house was built and covered with such of the ship's housing material as could be dispensed with. In the house were left provisions, fuel, etc., for the twelvemonth's supply of a large party, and in a convenient place was moored the steam launch belonging to the Investigator. This being seven feet longer than the other, made a fine vessel, capable, if necessary, of conveying Sir John Franklin's whole party to safe quarters with the whalers in Baffin's Bay.

It was now decided to proceed to the north side of Barrow's Strait, for the purpose of examining Wellington Channel, and of penetrating, if possible, as far west as Melville Island; but when about twelve miles from the shore the ships came upon the land ice, and it was impossible to proceed further. As they were struggling through the ice-packs and endeavoring to proceed westward, a heavy gale brought upon them the loose ice through which they had been making their way, and this close beset them for several days. The vessels sustained severe nips for some time, and were also endangered by the piling up around them of great hummocks, which threatened at times to cover and overwhelm them. The temperature at last fell to zero, and the pack froze around them into a solid mass. The experiences of the next weeks are thus described by Ross:

"We were so circumstanced that for some days we could not unship the rudder, and when by the laborious operation of sawing and removing the hummocks from under the stern, we were able to do so, we found it twisted and damaged; and the ship was so much strained as to increase the leakage from three inches in a fortnight, to fourteen daily. The ice was stationary for a few days; the pressure had so folded the lighter pieces over each other and they were so interlaced as to form one entire sheet, extending from shore to shore of Barrow's Strait, and as far to the east and west as the eye could discern from the mast-head,

while the extreme severity of the temperature had cemented the whole so firmly together that it appeared highly improbable that it could break up again this summer. In the space which had been cleared away for unshipping the rudder, the newly formed ice was fifteen inches thick, and in some places along the ship's side, the thirteen-feet screws were too short to work. We had now fully made up our minds that the ships were fixed for the winter, and dismal as the prospect appeared, it was far preferable to being carried along the west coast of Baffin's Bay, where grounded bergs are in such numbers upon the shallow banks of that shore as to render it next to impossible for ships involved in a pack to escape destruction. It was therefore, with a mixture of hope and anxiety that, on the wind shifting to the westward, we perceived the whole body of ice begin to drive to the eastward, at the rate of eight to ten miles per day. Every effort on our part was totally unavailing, for no human power could have moved either of the ships a single inch; they were thus completely taken out of our hands, and in the center of a field of ice more than fifty miles in circumference, were carried along the southern shore of Lancaster Sound.

"After passing its entrance, the ice drifted in a more southerly direction along the western shores of Baffin's Bay, until we were almost abreast of Pond's Bay, to the southward of which, we observed a great number of icebergs stretching across our path, and presenting the fearful prospect of our worst anticipations. But when least expected by us, our release was almost miraculously brought about. The great field of ice was rent into innumerable fragments, as if by some unseen power."

Every resource was immediately brought into active use, and by packing, warping, and sailing, the ice was cleared, and the ships reached an open space of water on the 25th of September.

"It is impossible," says Sir James, "to convey any idea of the sensations we experienced when we found ourselves once more at liberty, while many a grateful heart poured forth its praises and thanksgiving to Almighty God for this unlooked-for deliverance.

"The advance of winter had now closed all the harbors against us,

and as it was impossible to penetrate to the westward through the pack from which we had just been liberated, I made the signal to the Investigator, of my intentions to return to England." After a favorable and uneventful voyage, the ships arrived in England early in November, on the fifth of which month, Ross reported to the admiralty the result of his voyage.

The accident which prevented this party from examining the waters and coast toward Melville Island, is a good illustration of the versatility of the elements in Arctic regions, and the extreme uncertainty of the future, even for a short time, with which a polar navigator must, of necessity, enter those unknown waters. In ordinary seas, a few hours of adverse wind simply drive a ship from her course a few miles, or hinder for an hour, or a day, her direct progress; a return of favorable breezes sufficing in a short time, to counterbalance the temporary misfortunes. But in the latitude of almost perpetual ice, no one can predict what hour the pack may close about the hapless craft, and crush her sides or imprison her for dreary months in a desolate, frozen mass. When the peculiarities of Arctic navigation are considered, the marvel should be, not that so little, but that so much, has been brought to light of the mystery surrounding the "Storied Pole."



CHAPTER XLV.

EXPEDITION VIA BEHRING'S STRAIT—THE HERALD AND PLOVER—
PULLEN'S BOAT JOURNEY—LANCASTER SOUND—GREAT PREPARA-
TIONS—DISCOVERIES—THE PRINCE ALBERT RETURNS TO
ENGLAND—SLEDGE JOURNEYS—THE PRINCE ALBERT—A CRITI-
CAL SITUATION—WINTER ON BOARD THE PRINCE ALBERT.

The search expedition *via* Behring's Strait, was suggested and organized upon the ground, that if Franklin succeeded in pushing his way through the western ice, and thus proved the existence of a Northwest Passage, he would likely be found at or near the coast of Russian America, frozen up in the waters of that region, or cruising about to add to the geographical knowledge of those comparatively unknown parts.

This expedition was composed of the Herald, under Capt. Kellet, and the Plover in charge of Commander Moore. The vessels were expected to arrive in Behring's Strait about the 1st of July, 1848, and were directed to proceed along the American coast as far as possible, consistent with the certainty of preventing the ships being beset by the ice. A harbor was to be sought for the Plover within the strait, to which that vessel was to be conducted, and two whale-boats were to go on to the eastward in search of the missing voyagers, and to communicate, if possible, with the MacKenzie River party. The Plover was fitted out in the Thames in December, 1847; but having been found unseaworthy, was compelled, when she went to sea, to put into Plymouth for repairs, and did not finally leave England until February, 1848. This tardy departure, conjoined with her dull sailing, prevented her from passing Behring's Strait at all in 1848, but she wintered on the Asiatic coast just outside of the strait.

The Herald visited Kotzebue Sound, repassed the straits before the arrival of the Plover, and returned to winter in South America, with the intention of going northward again next season.

The summer of 1849 was spent by the two vessels in a series of faithful explorations, whose results added greatly to our knowledge of the Russian seas, without, however, disclosing any traces of Franklin or his men. Especially remarkable in connection with this voyage was a boat journey to the eastward by Lieut. Pullen. Some details of this adventurous voyage are given by Lieut. Harper, in his private correspondence. In four open boats they had set out for MacKenzie's River, which they reached after a perilous voyage of thirty-two days. Ascending this river they came to Fort Simpson, where they met Mr. Rae, and received an account of his own proceedings and those of Dr. Richardson.

On the 20th of June of the following summer, the whole party of Pullen, with the servants of the Hudson Bay Company and their stock of four, started for the sea to embark for England. On the 25th, however, they were met by a canoe containing dispatches from admiralty, ordering the search for Franklin to be resumed along the Arctic coast. Stopped by the ice, and shattering one of his boats in the perilous attempt to cross the northern channels, Pullen was also unsuccessful in this undertaking, and subsequently returned to England.

In the meantime, preparations for the search by way of Lancaster Sound were made on a large scale. The Resolute was commissioned by Capt. Horatio L. Austin, and the Assistance, Capt. Ommaney, was put under his orders, together with the Pioneer and Intrepid, steam tugs, commanded by Lieuts. Osborn and Cator. Capt. William Penny, an experienced whale-fisher, was also engaged for the search, and placed in command of the Lady Franklin and the Sophia. In addition to these expeditions fitted out by the admiralty, others furnished from private sources showed the interest that was widely and deeply felt in the cause. Capt. Sir John Ross, in spite of his advanced years, sailed in the Felix schooner, and, as we shall see, the United States came forward in the first of the Grinnell expeditions, a full account of which will be given in its place; Lady Franklin likewise, with that untiring energy and conjugal devotion which marked her conduct throughout, dispatched the Prince Albert under the orders of Commander Forsyth, of the Royal Navy. As many of these were largely subordinate in their objects, and unattended

by important results, the reader will not be burdened with a detailed account of their adventures. They were all sent out in (1850) and engaged in searching the same tract, the coasts on both sides of Lancaster Sound.

Overcoming all difficulties from the Baffin's Bay ice by the powerful aid of the steamers, Capt. Austin's squadron reached the entrance to the sound in July—Capt. Penny's vessel following in their wake. There they separated, and while the Pioneer and the Resolute remained to examine the neighborhood of Pond's Bay, Capt. Ommaney proceeded to Beechey Island and enjoyed the distinction of discovering the first traces of Franklin's expedition yet brought to light. Capt. Austin, his attendant steamer, Penny, and the American squadron, soon joined the Assistance at Cape Riley, and minute investigation only proved the importance of the discoveries, and demonstrated this to have been the scene of Franklin's winter quarters. The site of the encampment was plainly marked by the various signs of the former occupants. No record was found, however, and concerning the whereabouts or fate of the missing voyagers, the crews were no wiser than before. Papers were left at Cape Riley by each ship in its turn, and the Assistance landed provisions at Whaler's Point for the succor of Franklin's crew, should they ever reach that place.

These discoveries were made in August, and, as winter was rapidly approaching, little more could be done this season. Penny pushed up Wellington Channel as far as Cornwallis' Island, but turned back before an impassable barrier of ice, beyond which he was chagrined to discover open water as far as the eye could reach. The Lady Franklin and Sophia sought winter quarters in Assistance Harbor, at the south extremity of Cornwallis' Land, and they were speedily joined by Sir John Ross' Felix, while the Resolute and Assistance, of Austin, soon became fastened in the pack which filled up the channel between Griffith's Island and Cornwallis' Land. The Prince Albert sailed for England before winter set in; and her example was followed by the Advance and the Rescue of the Americans, though, as subsequent chapters will explain, fate had reserved for these two a more perilous passage than a simple journey to New York.

As the winter advanced, the hollows between the hummocks in the ice about the vessels became filled up with snow, and sledging parties were organized. In all, fifteen sledges were sent out with 105 men, so that only seventy-five remained to take charge of the ships. It is impossible to give any detailed account of these well-planned and brave attempts, the prosecution of which involved more hardship than had been endured throughout the whole of the winter preceding. Fatigue from drawing heavily loaded sledges over ice often rough and precipitous, suffering from exposure to the intense cold, from which no amount of clothing could protect the traveler, and more than all, the terrible snow blindness of an Arctic winter; all these told heavily upon them, and to these was added the heavier weight of disappointment. Each party returned with the same sorrowful response, "No signs!"

Several parties from the Lady Franklin were sent up Wellington Channel; one of them Penny commanded himself, and finding the channel too open to admit of sledge traveling, he returned to his vessel, provided himself with a boat, commenced his journey anew, and after a series of adventures and difficulties, which he overcame with courage worthy of a hero, he penetrated up Queen's Channel as far as Baring's Island and Cape Beecher, where, most reluctantly, he was compelled to turn back. A fine open sea stretched away to the north as far as the eye could reach, but his boats were weak and small, his men were few, and he was obliged to withstand the temptation to embark on the bosom of this inviting water. Penny really thought that Franklin had followed this route, and that his ships, if ever found, must be looked for on the untracked waters of the Polar Ocean. Capt. Austin, however, could not be persuaded of the truth of this theory, and as nothing could be done without his co-operation, Penny was compelled to follow the course pointed out by the admiralty squadron, which, after two ineffectual attempts to enter Smith's and Jones' Sounds, returned to England.

Lady Franklin's vessel, the Prince Albert, did not stay to share with her companions the inclemencies of an Arctic Christmas, but leaving them in preparation for winter, she brought home the welcome intelligence of the discoveries at Beechey Island, which inspired all interested

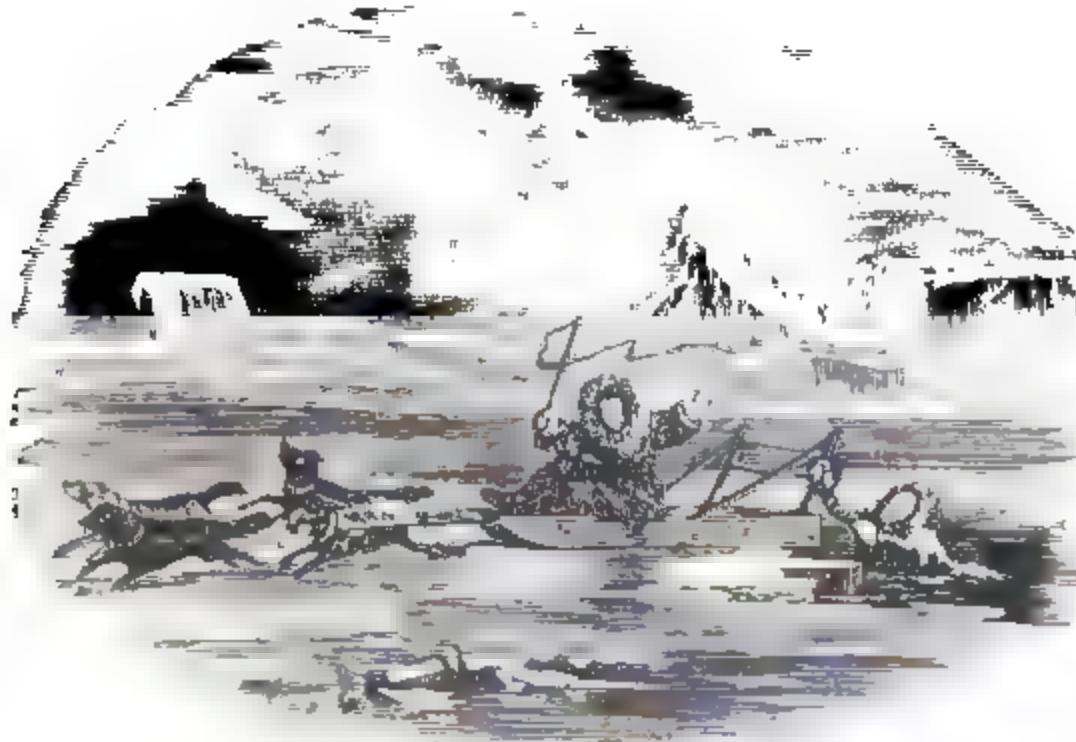
in the cause with a lively hope, and served not a little to expedite preparations for a coming season. No time was lost in refitting the brave little craft, which was placed in charge of Mr. Kennedy. His second in command was Lieut. Bellot, that noble volunteer in the cause of humanity, whose generous self-devotion procured for him a fraternal regard from all Englishmen. The object of the present voyage was to examine into Regent's Inlet and the coast of North Somerset, an important district for which no provision seemed to have been made in the admiralty plan of search; for nothing could then be known in England of the sledge parties by means of which Capt. Austin was at that very time in part supplying the deficiency.

The easterly gales had formed a barrier of ice across Barrow's Strait, cutting off all access to Cape Riley or Griffith's Island, so that the Albert was fain to turn at once into Regent's Inlet, and take temporary refuge from the wind in Port Bowen. As it was very undesirable, however, to winter on the coast opposite to that along which lay their line of search, Kennedy, with four men, crossed to Port Leopold amid masses of ice, to reconnoiter the western line of coast, as well as to ascertain whether any documents had been left at this point by previous searching parties.

After an hour spent in examining the locality and seeking for papers, they prepared to return, but to their dismay found their passage cut off by the ice, which, opening only in dangerous crevices, proved a hopeless obstacle when they attempted to reach the vessel on foot. It is difficult to conceive of a more deplorable situation. Darkness was fast coming on, the floe on which they stood was passing rapidly down the channel, and the ear was deafened by the crashing of huge ice-blocks, which dashed furiously against each other, and threatened momentarily to break in fragments the portion they occupied. The only alternative was to return to shore as best they could, and thus, separated from their ship, clothing, and provisions, they passed the night; their only shelter being their boat, under which each man in turn took an hour's rest. To these disagreeable experiences was added in the morning the mortification of finding that their ship had disappeared! Their course was now fixed; they must endure the winter as well as they could. Fortunately, the

depot of provisions left by Sir James Ross at Whaler's Point, was easily accessible, and finding everything in a good state of preservation, they immediately proceeded to make themselves as comfortable as possible. They fitted up the steam-launch, which, it will be remembered, was left by Sir James for the possible transportation of Sir John Franklin, and made a comfortable temporary dwelling.

Thus resigned to the exigencies of their situation, they were joyfully surprised on the 17th of October, by the appearance of Mr. Bellot with a party of seven men, who had dragged the jolly boat with them all the way from the ship. It seemed that this gallant officer had made two



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previous attempts to reach the unfortunate party, who now forgot their troubles in accompanying their friends back to the vessel.

The long winter passed on board the Prince Albert in the ordinary routine; its monotony being somewhat relieved by the barrel-organ presented by the liberal Prince from whom their vessel took its name. A few excursions took place from time to time, to form provision depots for a contemplated journey of exploration, or to calculate how soon they might start. On the 25th of February the grand expedition departed. It consisted, exclusive of the reserve party, which accompanied it some distance—of Kennedy, Bellot, and six men, together with four sledges,

drawn partly by dogs, and partly by the men. It is truly surprising to find what these men accomplished with this slender equipment. They traced the course of North Somerset to its southern extremity, crossed Victoria Strait, explored thoroughly Prince of Wales' Land, and followed the coast of North Somerset back again to their starting point, having, in an absence of ninety-seven days, performed a journey of eleven hundred miles, without illness or accident.

After the breaking up of the ice, the Prince Albert repaired to Cape Riley, where the North Star, under our friend Capt. Pullen, was stationed as depot-ship to a squadron which had, in the meantime, been sent out under Sir Edward Belcher. Kennedy and Bellot were at first anxious to remain out another season, and projected the plan of sending the vessel back, while they remained with the present expedition. Circumstances, however, induced them to change their plan, and they reached Aberdeen, with their full number of men, on the 7th of October, 1852.



CHAPTER XLVI.

SEARCH UNDER M'CLURE AND COLLINSON—THE ENTERPRISE AND INVESTIGATOR SENT OUT AGAIN—AROUND CAPE HORN—SANDWICH ISLANDS—IN KOTZEBUE SOUND—ALONE IN THE ARCTIC—A CAIRN ERECTED—A LIGHT-FINGERED NATIVE—AGROUND—A COOL RECEPTION—A NOVEL CHRONOLOGY—FALSE HOPES—NORTHWEST PASSAGE PREDICTED.

Ross' discovery squadron was scarcely welcomed home from its perilous operations of 1848-9, when it was at once decided by the English Government to refit the vessels, for the purpose of resuming the search for Franklin by way of Behring's Strait—the scene of the search on the part of the Plover and the Herald. It will be remembered that the Enterprise and Investigator had failed in their attempt to get west of Leopold Island, in the summer of 1849, and only escaped from a winter's imprisonment in that inhospitable spot, to be swept with the ice in Barrow's Strait out into Baffin's Bay, so that they had just time to retreat to England before the general closing of all Arctic seas.

Shaken and worn as the two ships were, a little judicious work in the dockyard soon put them into a proper condition once more to combat the ice of Arctic manufacture. Capt. Richard Collinson was appointed as senior officer and leader of the expedition, to the Enterprise, and Commander Robert Le Mesurier M'Clure to the Investigator. The former enjoyed a high naval reputation, and in China his abilities as a surveyor had done the State good service. The latter, the destined discoverer of the Northwest Passage, having passed a useful apprenticeship in the British service for twenty years, received an appointment to the Investigator, as a reward for valuable service as lieutenant under Ross in 1848-9.

In 1849-50 there was no lack of volunteers for Arctic service. The voyages of the preceding seasons had attracted the attention of all; and an interest in the cause, coupled with a desire for adventure, greatly hastened the completion of the preparations. On the 10th of January the two ships set out; but being, as Arctic-bound ships must be, heavily laden with provisions and fixtures, it became necessary to stop at Plymouth and do some slight repairing—a measure which gave them an opportunity of securing several more good seamen.

No delay was allowed here, however, for the great distance between England and Behring's Strait had to be traversed by way of Cape Horn. This involved a journey of six months before the sea could be reached; and it was fully realized that the delay of a month might cause the gate to the highway they sought to be closed against them. The services of a German clergyman, who had been a Moravian missionary, were duly engaged as interpreter, and he was dispatched on board the Investigator at Plymouth.

A few hours afterward the Arctic squadron weighed anchor and sailed forth with a fair and fresh wind. As the greater interest attaches to the Investigator, on account of her connection with the discovery of the Northwest Passage, it will be our aim particularly to follow her fortunes over the northern seas.

It was not until the 18th of March, 1850, nearly two months after leaving England, that the Investigator crossed the Southern Tropic in the Atlantic Ocean, although the greatest possible speed had been made, and the two vessels, having parted company from the first, had not been, as is usual, the means of detaining each other. After being towed through the Strait into the Pacific, she landed on the 17th of April, at Port Famine, on the coast of Chili.

Here Capt. M'Clure learned that the Enterprise had already passed, and what was still more to be regretted, had taken with her all the beef cattle, so that the Investigator's prospect of fresh meat was no nearer than the Sandwich Islands, to reach which the wide Pacific had to be traversed, as the Atlantic had already been. At Fortescue Bay, however, the Investigator found the Enterprise lying at anchor, and an

opportunity was afforded for comparing notes upon their respective journeys. On the 19th of April the weather permitted of their again starting out. Once in the broad Pacific the two vessels separated, never again to rejoin.

Crossing the Equator on the 15th of June, the vessel of our narrative was aided by the S. E. trades into 7° N. latitude. On the 1st of July they anchored gladly enough outside the harbor of Honolulu, the wind not being favorable for entering it. They found that Capt. Collinson had already called at this port and proceeded on his way. After purchasing as speedily as possible all necessary supplies of fruit and vegetables, they departed, fully equipped for their Arctic voyage, on the 4th of July, 1850. The ice, however, was still 40° distant, the Enterprise undoubtedly far ahead, and the season would be closing in, in about sixty days. Capt. M'Clure might well be anxious to devise the best means of reaching Behring's Straits. It was rumored at Honolulu that the Enterprise, in case of arriving at Kotzebue Sound, on the coast of Russian America, in advance of the Investigator, proposed to take with her the Plover, anchored since 1848 in that harbor, and leave the ship of M'Clure in her place on the American coast.

To prevent an occurrence which would prove so damaging to the ardor of his men, M'Clure made every breeze do him service, and arrived in Kotzebue Sound on the 29th of July. As no traces of the Enterprise had been seen by the Plover's men, it was inferred that she had either passed in a fog, or had not yet come up. Capt. M'Clure's impulse was to push on and either join the Enterprise or, failing in that, at least spend the remainder of the season in profitable exploration. Capt. Kellett of the Plover, although M'Clure's senior, did not feel that he had the authority to detain him, especially in the uncertainty of the whereabouts of the Enterprise. The Investigator, then, at once set sail, and in forty-eight hours was out of sight and alone on the rough surface of the stormy strait. Running northward as far as it was safe on account of the ice, M'Clure retraced his course southward and eastward, until he reached Wainwright Inlet, and again sighted the Plover for a time.

Keeping now very close to the American coast, or as near as the

ice would permit, the vessel made rapid progress toward Point Barrow. At midnight they rounded the northwest extreme of the American continent, and began their progress toward the eastward. On the morning of the 6th of August, 1850, the officers and crew felt free from all anxiety on the score of being able to enter the Arctic Ocean from Behring's Strait. Their first aspiration was to reach Melville Island, but as a waste of ice stretched before them in that direction as far as the eye could reach, it was decided to reach if possible, the "landwater," on the comparatively safe sea between the main land and the main body of ice; and once in that water to struggle eastward for that open sea off the MacKenzie River, spoken of by Sir John Richardson.

On August 8, when about one hundred and twenty miles east of Point Barrow, a man was sent ashore to leave a notice of the passage of the Investigator., and to erect a cairn. Here some native Esquimaux were found, of whom inquiry was made concerning the character of the water to the eastward. Communication being generally established with the tribe, it was admitted by some of the men that they had seen a ship in Kotzebue Sound (no doubt the Plover). They gave promise of an open channel from three to five miles in width, all along the shore until winter; but they could give no idea of what time that season began. M'Clure told them that he was looking for a lost brother, and made them promise that if they ever met the wandering party they should be kind to them, and give them "deer's-flesh."

The chief characteristics of this tribe seemed to be obesity, dirtiness, and dishonesty "Thieving, performed in a most artless and skillful manner, appeared their principal accomplishment. As Capt. M'Clure was giving out some tobacco as a present, he felt a hand in his trousers' pocket, and on looking down found a native, receiving a gift with one hand, and actually picking his pocket with the other. Yet, when detected, the fellow laughed so good-humoredly and all his compatriots seemed to enjoy the joke so amazingly, that even the aggrieved parties joined in the general merriment."

Working on to the eastward the Investigator had reached, on Aug. 14, longitude $148^{\circ} 17'$ west, and became much hampered among the

low islands, which, for a ship in foggy weather, were exceedingly dangerous. They had now passed the point at which Franklin had arrived in his journey westward from the MacKenzie, and might be said to be approaching the delta of that great river.

After several narrow escapes on the 14th of August the good ship found herself quite beset with the shoals surrounding the individual islands of this little archipelago; and at last, in attempting to escape through a narrow strait of three fathoms depth, she unfortunately took the ground. All sail was at first put on, in the hope of dragging her through it; but the effort proved fruitless. Even the laying out of all the anchors failed to float the vessel. All the load possible was now put into boats, several tons of water were let out of the tanks on board, and at last, after being aground five hours, the Investigator was once more got afloat.

On the night of Aug. 7 new ice was found for the first time upon the surface of the sea, a certain indication of the speedy approach of winter, and some doubted whether the MacKenzie could be reached. The general embarrassment was augmented by a mistake of the officers in charge. In the foggy weather prevalent at this season along the coast, a blind lead through the ice was followed for ninety miles, being mistaken for the channel between the main ice and the shore. Retracing their steps, they fortunately found a passage out of the ice, and were soon off the MacKenzie fifty miles distant from the mainland.

On the 24th of August the Investigator approached Port Warren, and a party landed, hoping that the natives at this point traded with the Hudson's Bay Company, presuming that in this way another dispatch could be sent to England. Their surprise, therefore, may be imagined at finding themselves received with brandished weapons of all sorts, and a general expression of defiance. A friendly footing at last being established, a brass button of European manufacture was seen suspended from the ear of the chief. In reply to inquiries he candidly confessed that it belonged to a white man, one of a party who had arrived at Port Warren from the westward. They had no boat, nor other means of conveyance, but had built a house, and finally departed inland. The owner of

the brass button had wandered from the rest of his party, and been killed by a native, who now, seeing the great ship, had fled. The white man had been buried by the chief and his son. With regard to time, however, the chief's account was singularly vague, and he could by no means be induced to fix the date with any more accuracy than "It might be last year and it might be when he was a child."

This tale of course gave rise to many conjectures; many were of the opinion that the wandering whites could be no other than members of Franklin's party; and all agreed as to the propriety of making thorough investigation before leaving the vicinity. A thick fog which warned them to return to the ship, did not allow them to visit the white man's grave, but on following the direction indicated by the chief, a hut was discovered. They were disappointed to find that the hut was old, and that the occupants had vacated it years before, while the decayed wood of which it was made bore not the slightest trace by which to glean information of the former tenants. There was at least nothing upon which to base the slightest connection with Franklin's fate, and therefore nothing to cause further delay in their onward voyage.

Another tribe of Esquimaux was encountered about the close of August off Cape Bathurst, who, being friendly, undertook to convey the dispatches to the Hudson's Bay Company, which it had been found impossible to transmit from Port Warren. It was of course necessary to make some trifling presents in return, and M'Clure gives an interesting account of the manner in which the women, excited by what they had already received, and tempted by the display of articles before them, at last became unmanageable and rushed upon the stores, seizing what they could reach, and carrying it off apparently without compunction.

The 1st of September found the Investigator still laboring to the eastward. From the 1st to the 5th the vessel was occupied in rounding the Bay formed by Capes Bathurst and Parry. On the 4th large fires were seen on shore, and at first were supposed to have been built by the natives to attract attention. It was not likely, however, that natives would indulge in so lavish an expenditure of fuel, and the appearance was at last attributed to the presence on shore

of Franklin and his comrades. Figures in white were seen moving about, and various suggestive objects were descried by the anxious searchers. Bitterly were our voyagers disappointed to find upon examination only a few small volcanic mounds of a sulphuric nature, while the tracks of reindeer, coming for water to a neighboring spring, clearly explained the mystery of the moving figures.

A fresh breeze and clearer weather with more open water enabled the Investigator to set away from the Continent more than she had done; and on the 7th of September Capt. M'Clure landed on a newly-discovered piece of land, to take possession of it in the Queen's name. This was named Baring's Land from the Lord of the Admiralty, in ignorance of its being connected with Banks Land already discovered.

Prince Albert Land was at last reached, and exhibited, in its interior, ranges of mountains covered with snow. Gulls and other birds were seen flying southward — a certain indication that winter was soon to set in. A hope began to possess the mariners that they were to accomplish what others had heretofore failed in achieving — namely, the discovery of the Northwest Passage. The dangers of the expedition, cold, hunger, hardship,—all were forgotten. "Only give us time," they said, "and we must make the Northwest Passage." Noon of September 9th placed them only *sixty* miles from Barrow's Strait.

"I cannot," says M'Clure's journal, "describe my anxious feelings. Can it be possible that this water communicates with Barrow's Strait, and shall prove to be the long-sought Northwest Passage? Can it be that so humble a creature as I will be permitted to perform what has baffled the talented and wise for hundreds of years? But all praise be ascribed to Him who has conducted us so far on our way in safety. His ways are not our ways, nor are the means that He uses to accomplish His ends within our comprehension. The wisdom of the world is foolishness with Him."

CHAPTER XLVII.

SIGNS OF WINTER—BESET—PREPARED FOR DANGER—WINTERING IN THE ARCTIC—POLAR HUNTING-GROUNDS—SUMMER AGAIN—PRINCE ALBERT'S CAPE—THE ENTERPRISE—ANXIETY IN ENGLAND—RELIEF EXPEDITIONS—A SECOND WINTER IN THE ARCTIC—THE SEARCH—THE DISCOVERY—PIM'S RECEPTION—A HAPPY CREW—ABANDONMENT OF THE INVESTIGATOR.

September 11, 1850, brought with it undoubted signs of winter. The thermometer fell to 11° below the freezing point; and a northwest gale rolled the ice down into the channel, and rendered it almost unnavigable. No harbor was in sight, and the long dark nights rendered progress peculiarly dangerous and difficult. On the 12th of September M'Clure's journal is to the following effect:

“The temperature of the water has now fallen to 28° Fahrenheit (freezing point of sea-water.) The breeze has freshened to a gale, bringing with it snow, and sending down large masses of ice upon us. The pressure is considerable, listing the vessel several degrees. Fortunately a large floe, which was fast approaching the vessel, has had its progress arrested by one extreme of it taking the ground, and the other locking with a grounded floe upon our weather beam. It is thus completely checked, and forms a safe barrier against all further pressure. As the rudder was likely to become damaged, it was unhung and suspended over the stern. We can now do nothing, being regularly beset, but await any favorable change of the ice, to which we anxiously look forward, knowing that the navigable season for this year has almost reached its utmost limit, and that a few hours of clear water will in all probability solve the problem of the practicability of the Northwest Passage.”

The 13th and 14th brought no change for the better, but on the 15th the wind veered to the southward, and the vessel began to drift up the channel. On the 16th a point was reached only thirty miles from the beginning of the water, which, under the name of Barrow, Melville, and Lancaster, connects with the waters of the Atlantic through the ice-studded waters of Baffin's Bay. For some reason, the ice in which they had been drifting would go no farther, and thus at this tantalizing distance from Barrow's Strait they were compelled to stop, and for a time relinquish their hope of reaching the Northwest Passage.

It was necessary now to decide whether they would retrace their steps to the south and find a suitable place for wintering, or remain in the pack and brave the dangers long since declared fatal by alleged competent authorities. "I decided," says M'Clure, "upon the latter course, encouraged by the consideration that to relinquish the ground obtained through so much difficulty, for the remote chance of finding safe winter quarters, would be injudicious, thoroughly impressed as I was with the absolute importance of retaining every mile, to insure any favorable result while navigating these seas."

The ice now closed about the Investigator, and her peril for a time was imminent. As the massive floes came crowding against her, causing her to surge back and forth in her narrow bed, the noise was so deafening that the orders of the officers, although delivered through trumpets, could scarcely be understood. Anticipating the worst that could happen, Capt. M'Clure ordered a large quantity of provisions and fuel to be placed on deck, the officers and men to be carefully told off to their boats, and every one to be in readiness for a final catastrophe. Every precaution was taken to save life, even if the ship could not be preserved. At length, however, the old floes became so strongly cemented by the young ice, that the element around the vessel assumed a state of quiescence, and the danger which had been threatening was for a time averted.

The housing was now stretched over the ship, and the customary preparations for winter were made. Care was taken to leave the sunny side of the vessel uncovered, in order that the light might be enjoyed as long as possible, for Capt. M'Clure was well aware of the scorbutic

difficulties with which he must contend, and sought to antidote them as far as possible in advance. Altogether, the crew was made much more than ordinarily comfortable, and the usually cheerless prospect of a winter in the ice was brightened to a wonderful degree by hopeful spirits and willing hands.

The winter was well spent in exploring the coast adjacent to the vessel's position, and in battling the tendency to scurvy, by killing whatever could be found. On the 18th of April, 1851, three exploring sledge parties were sent out under Lieut. Haswell, Lieut. Cresswell,



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and Mr. Wynniant, respectively to the southeast, northwest, and northeast, with six weeks' provisions each. By these observations the surrounding coast lines were accurately traced, but no sign of the missing vessels could be discovered. The party first mentioned discovered a tribe of Esquimaux who subsequently visited Capt. M'Clure; they proved remarkably intelligent, and readily traced on paper the coast line of Wollaston and Victoria Land, thereby determining the long-disputed point, whether or not these districts really belong to the Continent of North America. Above eight hundred miles were traversed by these three parties, who diligently erected cairns and deposited in-

structions wherever they would be likely to arrest the attention of wanderers; and all returned to headquarters convinced, from the total absence of trace or sign, that Franklin could not have penetrated these regions.

Between the 5th and 22d of May those on board the Investigator hailed with delight the signs of coming summer. The vessel was calked and painted, and hatchways opened to dry up long accumulated damp between decks; the stores were examined and culled with great care, and the health of officers and crew was thoroughly looked into. Not a trace of scurvy was discovered, "a record unparalleled in the history of Arctic voyages." This wonderful exemption from disease was largely due to the prevalence of game, and the skill exhibited by the crew in the securing of it. One valley visited by them was literally alive with ptarmigans and hares, and the keen appetites of the seamen eventually made them keen sportsmen.

In the latter part of May a large bear passing the ship was shot by M'Clure, and its stomach was found to contain an astounding medley.

"There were raisins that had not long been swallowed; a few small pieces of tobacco-leaf; bits of fat pork cut into cubes, which the ship's cook declared must have been used in making mock-turtle soup, an article often found on board a ship in a preserved form; and lastly, fragments of sticking plaster which, from the forms in which they had been cut, must evidently have passed through the hand of a surgeon." Capt. M'Clure, being ignorant of the ships which had been sent out from England, could think of only two ways in which this phenomenon was possible, namely, that the bear had come over some floe of ice visited by the Investigator last autumn, or that the Enterprise must be wintering somewhere in the vicinity. But we know, or might, if we had followed the Enterprise on her course from South America to Russian America, that she had returned to the south, and was at this time in China. The first theory was rendered improbable by the fact that no vestige left by the Investigator in her churning of the previous autumn, could have avoided destruction in the endless grinding of the moving ice. A meat-can containing all the

articles mentioned above, was afterward found, convincing all of a fact which could render them no service,—that some other party had wintered in their immediate neighborhood.

The ice which had so long held the vessel a prisoner, began to yield about the middle of July, and M'Clure shaped his course for the north-east, intending, if possible, to sound the northern coast of Melville Island. At the outset of her voyage the Investigator had a narrow escape; the floe to which she was temporarily attached gave way, and the detached portion being whirled round and crushed together by the pressure of surrounding ice, bore down with tremendous velocity and force upon the sturdy vessel. The chains and lines were at once let go, and the ship thus freed from the floe—a fortunate event; for the vessel no longer held stationary, was driven onward by the blow, and so escaped from the influence of the floe.

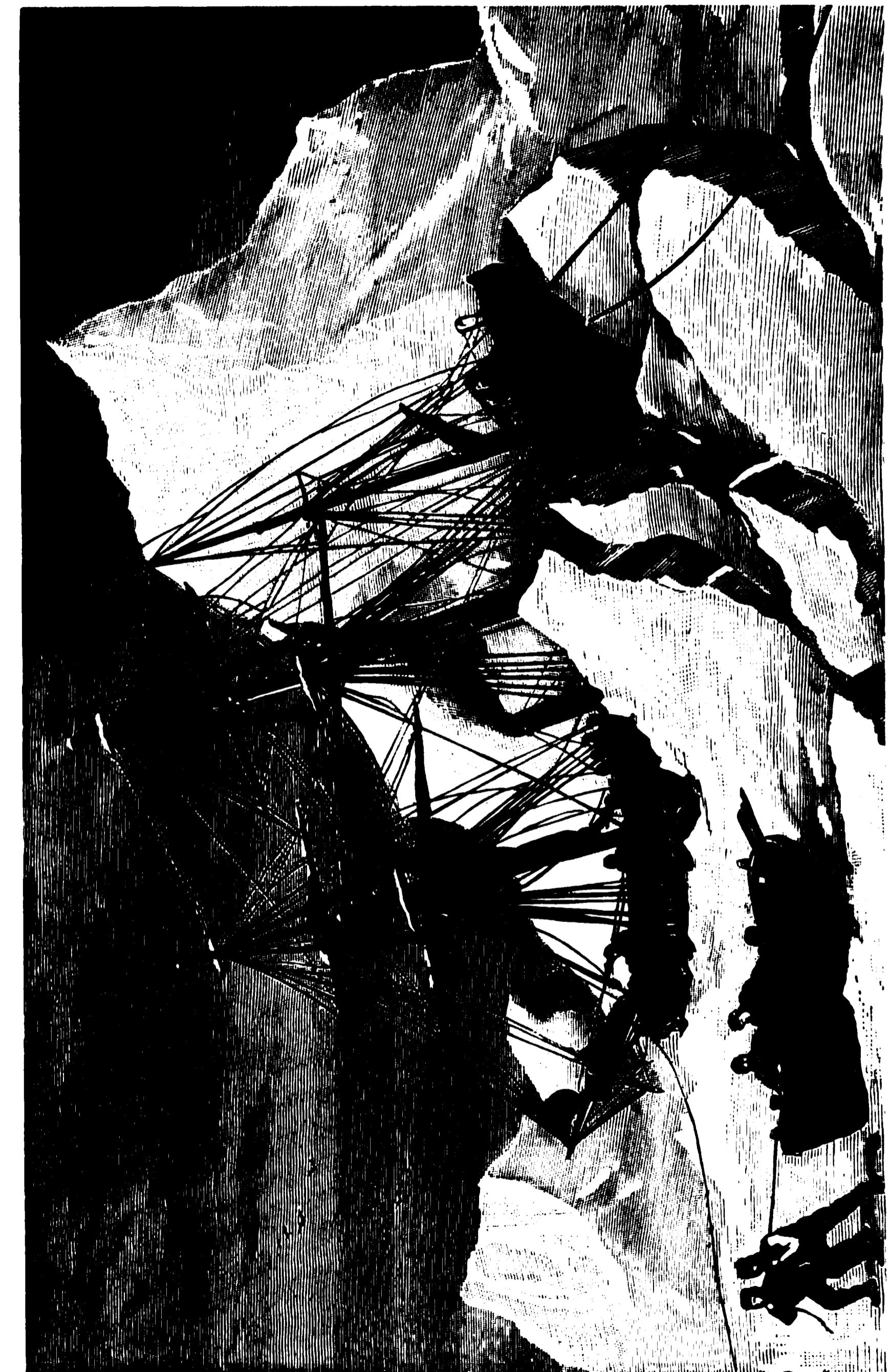
Escaped from this danger, the Investigator followed her course with comparative ease until the 20th of August, when they were driven between the ice and the beach, a little north of Prince Albert's Cape. Here they lay till the 1st of September, in comparative safety. At this time, however, they were threatened with imminent peril from an immense floe to which they were attached, being raised by surrounding pressure, and elevated perpendicularly thirty feet. A few moments of suspense and anxious watching showed all on board how small an additional force would turn the glassy rocking-stone completely over, and crush the helpless vessel in that awful fall. Gradually the floe slipped down and righted itself, and the ship so long and severely tried, again sailed level on her course. After a series of such experiences as we have just narrated, the Investigator was compelled once more by the advance of winter to seek winter quarters. A harbor on the north of Baring Island was chosen, and the winter of 1852-3 was begun.

Having now brought to a close the narration of the Investigator's experience up to 1853, let us turn to the course of the Enterprise, which started with the Investigator under such promising circumstances. Having, as before intimated, wintered in China in 1850-1, she had the next season again approached the north coast of America, and on the 24th of

July was following in the track of the Investigator, around Point Barrow. Struggling along as far as she could, she wintered in the ice in 1851-2, at the southern end of Prince of Wales Strait. It was not until September, 1852, that the Enterprise seems to have made any progress eastward from her wintering-place—a direction which Capt. Collinson naturally decided upon attempting, with a view to penetrate the distance between him and Cape Walker. He reached on the 26th of September, Wollaston Land, where he passed the winter of 1852-3, of which we are now writing. In these winter quarters they were visited by Esquimaux, one tribe of whom numbered over 200. In their possession was found a piece of iron, which many still believe to have come from the missing ships. This seems very probable from what we know of the place of Franklin's death; but Capt. Collinson, being ignorant of that fact, could have no idea of how close his ship was to the place where Dr. Rae's informants afterward stated that they had seen the remains of Franklin's men. Leaving now the Enterprise, presuming that she experienced a very severe winter, we turn once more to the Investigator, whose adventurous crew and officers were spending their second winter in the ice.

Their story from this point may be told in few words. All the English vessels which had sailed in the same year with the two ships of our narrative, had returned home, and great anxiety was beginning to be felt for the long-absent fleet. The commander of the Investigator had premised the necessity of eventually abandoning his ship; but as a preliminary step, selected a party of men who were to make the best of their way out of the ice and get to England if possible. A fortunate combination of circumstances, however, was about to make this dangerous journey unnecessary.

In accordance with the "Arctic Committee's Report," an expedition for the relief of the Enterprise and Investigator was sent out from England in the spring of 1852. It consisted of the Assistance and the Resolute, under Sir Edward Belcher and Capt. Kellett; two steam-tugs, Intrepid and Pioneer; and a provision-ship, the North Star, under Commander Pullen. The northern waters were reached by way of Baffin's Bay,



H. M. S. INTREPID ICRD.

about the 1st of September, 1853, and the search immediately begun. Melville Island was reached by Capt. Kellett of the Resolute, and Commander M'Clintock of the Intrepid, on the 5th of September, and the vessels made fast to ice which still lingered in Winter Harbor, the well-known wintering-place of Sir Edward Parry in the year 1819.

Having become securely frozen in for the time, parties were sent out during the fall and winter for discovering traces of either of the ships sought. On one of these occasions, Lieut. Meacham of the Resolute, happened to inspect more closely than usual the famous mass of sandstone on which Parry had caused his ship's name to be engraved. He could scarcely credit his senses when he discovered a document upon its summit, detailing the practical accomplishment of the Northwest Passage, and the position of H. M. S. Investigator in Banks Land.

Impressed with the belief that the Investigator had got out of the Bay of Mercy and passed to the northwest of Melville Island, M'Clintock and Meacham chose routes which would intercept her supposed track; consequently, Lieut. Pim of the Resolute, was, with Dr. Domville of the same ship, chosen to make a journey with sledges from Melville Island to Banks Land; and on March 10, 1853, they started, amid the prayers and cheers of their shipmates.

In the meantime, April, 1853, greeted the inmates of the Investigator. All preparations had been made for the departure of the party before referred to. On the 5th of April a fine deer was hung up ready to be divided for a hearty meal, of which all hands were to partake before their separation. The events of this day are given in the language of M'Clure's journal: "While walking near the ship * * * * * we perceived a figure walking rapidly toward us from the rough ice at the entrance of the bay. From his face and gestures we both naturally supposed at first that he was some one of our party pursued by a bear, but as we approached him, doubts arose as to who it could be. He was certainly unlike any of our men; but recollecting that it was possible some one might be trying a new traveling dress, preparatory to the departure of our sledges, and certain that no one else was near, we continued to advance; when within about two hundred yards of us, this

strange figure threw up his arms, and made gesticulations resembling those of Esquimaux, besides shouting at the top of his voice, words which, from the wind and the intense excitement of the moment, sounded like a wild screech; and this brought us to a stand-still. The stranger came quietly on, and we saw that his face was black as ebony, and really at the moment we might be pardoned for wondering whether he was a denizen of this world or the other, and had he but given us a glimpse of a tail or a cloven hoof, we should have assuredly taken to our legs; as it was, we gallantly stood our ground, and had the skies fallen upon us, we could hardly have been more astonished than when the dark-faced stranger called out:

"‘I’m Lieut. Pim, late of the *Herald*, and now in the *Resolute*. Capt. Kellett is in her at Dealy Island.’"

“To rush at, and seize him by the hand, was the first impulse, for the heart was too full for utterance. The announcement of relief at hand, when none was supposed to be even within the Arctic circle, was too sudden, unexpected, and joyous, for our minds to comprehend it at once. The news flew with lightning rapidity, the ship was all in commotion; the sick forgetting their maladies, leapt from their hammocks; the artificers dropped their tools, and the lower deck was cleared of men, for they all rushed to the hatchway to be assured that a stranger was actually amongst them, and that his tale was true. Despondency fled from the ship, and Lieut. Pim received a welcome—pure, hearty, and grateful—that he will assuredly remember and cherish to the end of his days.”

M’Clure at once decided to visit Capt. Kellett to make arrangements with him for conveying to England all the sick on board his vessel. It was still his purpose to remain by the *Investigator* another season if necessary, rather than abandon her while any possibility of her release remained. We can easily conceive of the nature of his meeting with Capt. Kellett. They had last parted on that eventful day in 1850 when Kellett had felt tempted to restrain M’Clure until his consort came up—a course which, if it had been adopted, would probably have prevented the happy achievement of the Northwest Passage.

Capt. Kellett, however, did not feel it to be in accordance with his

duty to allow M'Clure to once more peril the lives of his crew by rashly remaining in the ice during the winter of 1853-4. A consultation between Dr. Domville and Dr. Armstrong resulted in condemning the measure as impracticable, considering the health of the Investigator's crew; and M'Clure himself, found to his surprise and mortification that only four of his whole number felt able and willing to go through another winter. Much, therefore, as he regretted the step, he felt justified in leaving the Investigator and proceeding with his disabled crew to the hospitable Resolute and Intrepid, where he arrived June 17. Their troubles, however, were yet by no means at an end; for the gallant squadron which had volunteered their rescue, in turn found itself beset and unable to leave its doubtful harbor until another summer—that of 1854.

The events which led to their final release, and the circumstances of the questionable desertion by Sir Edward Belcher of several ships in good order, will be fully presented in the succeeding chapter.



HEAD OF REINDEER.

CHAPTER XLVIII.

• BELCHER'S INNOVATION — HIS INSTRUCTIONS TO CAPT. KELLETT —
RETURN TO ENGLAND—A COURT-MARTIAL—A BRITISH WRITER'S
FANCY — OSBORN AND CATOR — TRACES — REPORT OF RAE'S
DISCOVERIES—A THRILLING STORY.

The abandonment of a number of ships in good condition, well-provisioned, and with good promise of release within a reasonable period, certainly constituted, at the time, a novel conclusion to a series of Arctic ventures; and one which subsequent repetition has never justified; so that, in pursuing this course, Sir Edward Belcher may at least have had the satisfaction of complete originality. It is not the purpose of this chapter, however, to pronounce final judgment upon the wisdom of choices, nor to attempt to criticise motives, but simply to give the facts as they occurred; from which the reader will be free to form his own conclusions.

While M'Clintock and Kellett had been pushing their investigations in the direction of Melville Island and Banks Land, the remainder of Belcher's squadron had continued at or near Beechey Island, and had made it the center of operations. Although some good service was rendered in the way of surveying and exploration, Sir Edward's course appears to have been timid and unsailorlike throughout. His ships Pioneer and Assistance, having become temporarily beset fifty miles north of Beechey Island, surprising arrangements for the abandonment of the whole fleet were at once made by Belcher.

Totally ignorant of such an arrangement on the part of the senior officer, the commanders of the Resolute and Intrepid, which we left frozen up in the winter of 1853-4, had so carefully and judiciously husbanded their resources that they were prepared for the possible contingency of being compelled to remain still another year in the ice near Barrow's Strait. This fact was all the more to their credit because they had added

to their list of consumers the exhausted crew of the Investigator. Capt. Kellett was therefore surprised to receive from Sir Edward, in the spring of 1854, a confidential letter containing the following remarkable passage:

"Should Capt. Collinson, of the Enterprise, fortunately reach you, you will pursue the same course, and not under *any consideration risk* the detention of *another season*. These are the views of the government; and having so far explained myself, I will not hamper you with further instructions than, meet me at Beechey Island, with the crews of all vessels, before the 26th of August."

Determined not to take such a course hastily, Capt. Kellett sent Capt. M'Clintock to inform Sir Edward Belcher of the perfect possibility of saving his ships; to advise him of the stores of provisions which had been saved up; to assure him of the health of the men; and to express his disapproval of so unnecessary and unwise a movement. These representations, however, were unavailing. Sir Edward sent back by M'Clintock an *order* for abandoning the Resolute and Assistance, and the Investigator's brave crew, "who had lived through such trials and hardships for four winters, stared to see all hands gradually retreating upon Beechey Island, ready to return to England as speedily as possible."

Thus, leaving Capt. Collinson to steer the Enterprise safely out as best he might, and abandoning the good ships Investigator, Resolute, Assistance, Intrepid and Pioneer, Belcher ordered the combined crews of those five vessels to seek quarters on board the North Star provision-ship, and embarked for England in charge of many chagrined and dissatisfied Englishmen. All, including the Enterprise, reached England in September, 1854, being welcomed home by a sympathizing but disappointed people.

The matter of the abandonment of the Investigator was of course formally examined, and Capt. M'Clure was tried by a court-martial; a proceeding which resulted in his most honorable acquittal. Not knowing what might in the meantime have been accomplished by Sir John Franklin, the admiralty, agreeing that M'Clure had virtually achieved a Northwest Passage, were unanimous in bestowing upon himself and

crew £10,000, or half of the standing reward. In addition to this distinction, M'Clure was knighted by the Queen, and several of his officers received merited promotion.

Sir Edward Belcher was also tried by a court-martial, but, although he was barely acquitted, the venerable chairman of the judicial body before whom he was brought, handed him his sword in "significant silence." Concerning the justice of the acquittal, it seems difficult to determine, but his course in this particular case seems to be in contrast with the usually generous, courageous spirit of the British sailor. A writer contemporaneous with the events just narrated, thus feelingly describes the condition of the abandoned vessels:

"Meantime, it is sad to think of those poor doomed vessels, which we have invested with so much personality in our nautical fashion, deserted thus in that lone white wilderness! We can fancy in the long coming winter, how weird and strange they will appear in the clear moonlight —the only dark object in the dazzling plain around. How solemn and oppressive the silence and solitude all around them! No more broken by the voices, and full-toned shouts, and ringing laughter, which so often wake the echoes far and near; varied only by the unearthly sounds that sweep over these dreary regions when a fissure opens in the great ice-fields, or the wild, mournful wailing of the wind among the slender shrouds and tall, tapering masts, that stand so sharply defined in their blackness upon the snowy background. And so, perchance, long years will pass, till the snow and ice may have crept round and over them, and they bear less resemblance to noble English sailors than to shapeless masses of crystal; or more likely some coming winter storm may rend the bars of their prison, and drive them out in its fury to toss upon the waves, until the angry ice gathers around its prey, and, crushing them like nut-shells in its mighty grasp, sends a sullen booming roar over the water—the knell of these intruders on the ancient Arctic solitudes!"

VOYAGE OF LIEUT. OSBORN.

In following the fortunes of the various expeditions sent out in the year 1850, we must not omit to speak of the adventures of the Pioneer

CUTTING ICE DOCKS.



and Intrepid, under Lieuts. Osborn and Cator, both of whom proved themselves brave and efficient navigators. As will be seen by their instructions, the object of their voyage was essentially the same as that of the other expeditions which were prepared and sent out almost at the same time. They received orders from the admiralty to examine Barrow's Strait, southwesterly to Cape Walker, westerly toward Melville Island, and northwesterly up Wellington Channel.

Starting from England early in May, the coast of Greenland was sighted on the 26th, and the Whalefish Island, their first stopping place, soon arrived at. May and June were both spent in cruising up the west coast of Greenland, and endeavoring to effect a safe passage to the opposite shore of Baffin's Bay. During the first days of July, Osborn had his first experience of the real perils of the Arctic world. The hands were all at dinner when the startling announcement was made that a large body of ice was bearing down upon the ship, and threatening to crush her in its surging mass. The best security in emergencies of this kind, is the preparation of docks in the body of the ice, cut in the portion which is firm and solid. The ships are then thrust into these artificial "leads," as it were, and thus are protected by the very element to whose tender mercies they were but a short time before exposed. In this case the combined crews were instantly on the ice, their triangles were rigged, and their long ice-saws were at work. The relief was much needed, for the floe was coming with terrible force, and the collisions between pack and berg were frequent and prodigious.

After struggling through almost impenetrable ice for several weeks, they reached Lancaster Sound on the 22d of August, and began the search. They soon reached Beechey Island, on which the three graves of Franklin's men were to be found, together with other evidences of his having wintered there during 1845-6, the first winter of his absence.

When about to leave Beechey Island Osborn found it difficult under his directions to determine what course to pursue. Franklin had evidently chosen one of three routes on leaving Beechey Island. He must either have proceeded southwest by Cape Walker, west by Melville Island, or northwest through Wellington Channel. In the meantime, vague reports

became current that Penny or his men had discovered sledge-tracks on the west coast of Beechey Island. He therefore determined to explore this island in person, before adopting any other course. First finding the sledge-marks he divided his party, and each followed the sledge-marks in an opposite direction. Among other things he discovered the site of a circular hut or "shack," which had apparently been built and used by a shooting party from the Erebus or Terror. The stones used instead of stakes, which could not be driven into the frozen ground, lay scattered around, and some well-blackened boulders indicated where the fireplace had been. Bones, empty meat-cans, and porter bottles were strewn around, and told of feasts and good cheer, but no written word helped to solve the mystery which occupied so fully the minds of our searchers.

Soon after this the Intrepid and Pioneer fell in with the other English vessels which, together with the two American brigs, were engaged in exploring the same regions as themselves. Nothing further of interest occurred save the hardships and adventures common to any crew experiencing the rigor of an Arctic winter. After spending the winter of 1850-1 in the ice and narrowly escaping a second imprisonment, the squadron reached England in September, 1851, after a successful trip of three weeks.

DISCOVERIES AND REPORT OF DR. RAE.

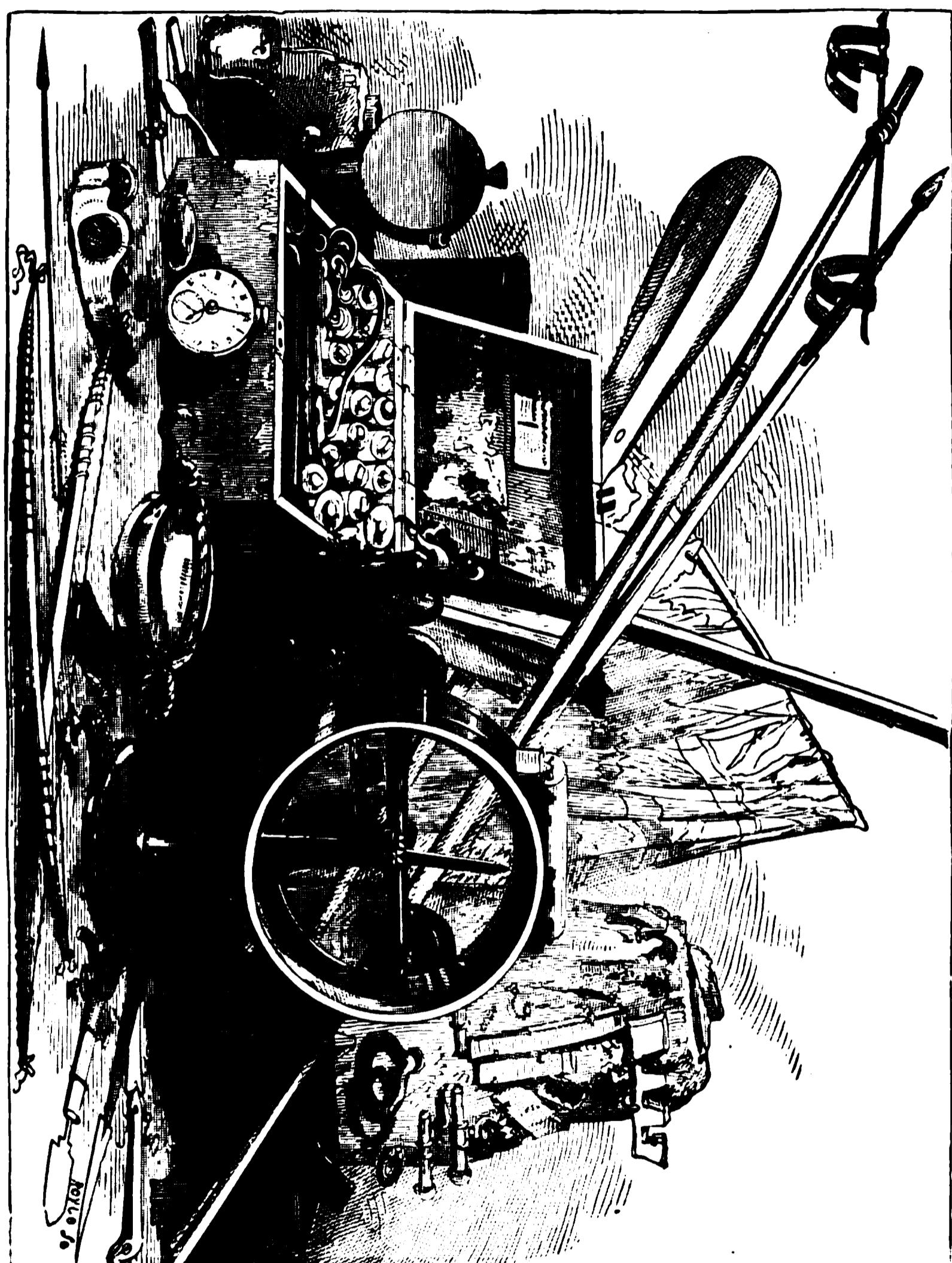
Early in the year 1854, before the return of M'Clure and Belcher, the following notice appeared in the *London Gazette*:

"Notice is hereby given that if intelligence be not received before the 31st of March next of the officers and crews of H. M. S. Erebus and Terror being alive, the names of the officers will be removed from the Navy List, and they and the crews of those ships will be considered as having died in Her Majesty's service. The pay and wages of the officers and crews of those ships will cease on the 31st of March next; and all persons legally entitled, and qualifying themselves to claim the pay and wages then due, will be paid the same on application to the Accountant General of Her Majesty's navy."

"By command of the Lords Commissioners of the Admiralty."

The power of the party of progress is less. The varieties of the
party are numerous & in their majority, like that Louise East, and many
of the members of the party are the right party to accomplish his
object. The object of the party is the restoration of the state. It
is to be had in view with every interest of the state ever seen any
where in the world. The party of progress is the party of white men and
black men. It is the party whose sole object is to secure the state. It is the
party of progress.

He had not seen any of the party, save Foster. Rue glanced the following morning at the log, and it was presented in his report: -In the night of the 11th of July, while some Esquimaux families were hunting deer on the north coast of a large island, named in Arrow-wood's chart King William's Land, about forty white men were seen running in company southward over the ice, and dragging a boat and sledges with them. They were passing along the west shore of the above named island. None of the above party could speak the Esquimaux language so well as to be understood; but by signs the natives were led to believe that the ship or ships had been crushed by ice, and that they were now going where they expected to find deer to shoot. From the appearance of the men, all of whom, with the exception of



an officer, were hauling on the drag-ropes of the sledge, and looked thin, they were then supposed to be getting short of provisions; and they purchased a seal, or piece of seal from the natives. The officer was described as being a tall, stout, middle-aged man. When their day's journey terminated, they pitched tents to rest in.

"At a later date the same season, but previous to the disruption of the ice, the corpses of some thirty persons, and some graves, were discovered on the continent, and five dead bodies on an island near it, about a long day's journey to the northwest of the mouth of a large stream, which can be no other than Back's Great Fish River, as its description and that of the low shore in the neighborhood of Point Ogle and Montreal Island agree exactly with that of Sir Geo. Back. Some of the bodies were in a tent or tents; others were under the boat, which had been turned over to form a shelter, and some lay scattered about in different directions. Of those seen on the island, one was supposed to have been an officer, as he had a telescope strapped over his shoulders, and a double-barreled gun lay beneath him.

"From the mutilated state of many of the bodies, and the contents of the kettles, it is evident that our wretched countrymen had been driven to the dread alternative of cannibalism as a means of sustaining life. There must have been among this party a number of telescopes, guns, watches, compasses, etc., all of which seem to have been broken up, as I saw pieces of these articles with the natives, and I purchased as many as possible, together with some silver spoons and forks, an Order of Merit in the form of a star, and a small silver plate engraved 'Sir John Franklin, K. C. B.'"

In this report Dr. Rae sent a list of things bought from the Esquimaux, and afterward on his return to England brought the articles themselves, and received the proffered reward of £10,000. He had not proved the death of Franklin, but his account bore terribly painful evidence to the now generally received opinion that the whole combined crew, 135 in number, had miserably perished. From Rae we revert to the details of the adventures of the American Grinnell Expedition, already referred to in a previous chapter.

CHAPTER XLIX.

FIRST GRINNELL EXPEDITION—ACTION OF CONGRESS—BENEVOLENCE OF MR. GRINNELL—INSTRUCTIONS—LEAVE NEW YORK—MELVILLE BAY—IN A LEAD—ICE-NAVIGATION—ARCTIC FLORA—A FORTUNATE ESCAPE.

The anxiety felt by the people of Great Britain for the rescue or discovery of Sir John Franklin, was warmly appreciated and shared by their friends on this side of the water. Except from a scientific standpoint, the discovery of a Northwest Passage did not, for plain reasons, have the interest for the United States that it had for England. But America had looked with admiration upon that display of valor and heroism which had had such a tragical termination; and her great heart beat in sympathy for the bereaved nation and the afflicted widow. Thus we find private benevolence co-operating with the public purse in fitting out expeditions in behalf of the object common to at least two nations.

The chief American expeditions for this purpose were three in number, commonly called the Grinnell Expeditions, from the agency of Mr. Henry Grinnell of New York, in their conception and execution. The first was commanded by Lieut. DeHaven, U. N.; the second by Dr. Kane, U. N., and the third by Mr. C. F. Hall, of Cincinnati. An account of these voyages will be given in their chronological order.

Lady Jane Franklin had personally applied to the United States for aid “in the enterprise of snatching the lost navigators from a dreary grave.” The matter was considered by Congress, but owing to the circumstances and time of its introduction, the measure for responding to this appeal was threatened by defeat. At this juncture the benevolent gentleman above mentioned generously fitted out two of his own vessels and tendered their use to the United States government. Reassured or stimulated by such liberality, Congress accepted the gift, and immediately

authorized the executive to detach men and officers from the navy to accompany and take charge of the expedition. Lieut. Edward J. DeHaven was chosen as commander, and Dr. E. K. Kane, who was summoned by telegram from his field of labor on the Gulf of Mexico, as medical officer.

It may be well to state here, that Lieut. DeHaven declining to make more than an official report of the voyage, an extended account was written and published by Dr. Kane, being compiled largely from his journal. We shall feel free, accordingly, when occasion presents itself, to quote from his copious observations in his own clear and graceful style.

The two vessels proffered by Mr. Grinnell for the use of the party, were the brigs, Advance and Rescue, and were admirably calculated for their intended service. In an enterprise of this kind strength rather than weight or size seems to be the *desideratum*, and the following description of the Advance, given by Dr. Kane, well shows the good judgment of Mr. Grinnell in the matter of selection:

"Commencing with the outside, the hull was literally double, a brig within a brig. An outer sheathing of two and a half inch oak was covered with a second of the same material; and strips of heavy sheet iron extended from the bows to the beam as a shield against the cutting action of the ice. The decks were water-tight—made so by a packing of tarred paper between them. The entire interior was lined, ceiled with cork, which, independently of its low conducting power, was a valuable protection against the condensing moisture, one of the greatest evils of the polar climate.

"The strengthening of her skeleton—her wooden framework—was admirable. Forward from keelson to deck was a mass of solid timbers, clamped and dovetailed with nautical wisdom, for seven feet from the cutwater; so that we could spare a foot or two of our bow without springing aleak. To prevent the ice from forcing in her sides she was built with an extra set of beams running athwart her length at intervals of four feet, and so arranged as to ship and unship at pleasure. From the Samson posts, strong, radiating timbers, called shores, diverged in every

direction; and oaken knees, hanging and oblique, were added wherever space would permit."

The plan of the voyage, as indicated by the formal message of instruction from the Secretary of the Navy to Lieut. DeHaven, was briefly as follows:

The main object of the expedition was understood to be the discovery of Sir Jno. Franklin and his companions; subjects of scientific inquiry were to be considered only so far as they might not interfere with the grand object of the search.

The ships were to steer for Barrow's Straits, and decision was to be then made as to whether they should separate; in case of separation a place of rendezvous was to be agreed upon with Commander Griffin, who was to have charge of the Rescue.

In case Barrow's Strait could not be approached or penetrated, attention was to be directed to Smith's Sound or Jones' Sound; and in case the ice should materially obstruct these, making entrance impossible or dangerous, the expedition was advised to return at once to New York, or make further search at the discretion of the leader.

As the entire Arctic face of the Continent had been traversed in search of the missing navigators, it was thought useless to re-examine those points.

The commander was enjoined not to take any course which would hazard his own life or that of the crew, and was advised to spend only one winter in the Arctic regions.

On the 22d of May, 1850, the two ships were towed out of New York harbor and after taking leave of Mr. Grinnell and his sons, who had accompanied the ships out to sea, they tacked away in good earnest, and were soon out of sight of the metropolis. The course along up the Atlantic till the coast of Greenland was reached, was varied by the new experiences of icebergs and driftwood from the far north. An occasional school of whales was met, to amuse the crew with their porpoise-like tumbling about the ship. The lengthening days, also, as gradual advance was made toward the north, was a novel experience, and when at last the sun ceased altogether to disappear below the horizon, the usual order of

things seemed quite subverted. To these things the crew quickly became accustomed, and routine on board the ships being perfect, the enthusiasm for discovery soon caused these disturbing elements to be forgotten.

The 1st of July found the little squadron approaching Melville Bay—that well-known wholesale depot of ice, both new and old. It was the fate of the Advance and Rescue, as it had been of many ships before them, to become engaged in a large ice-pack; and for weeks they lay without being able to advance or recede, except with the pack. It may not be generally known that ice-navigation, or the manœuvring of a vessel necessary when involved in a pack, has become a recognized branch of the nautical art,—being, as it were, a science in itself, and having its own terminology to designate the difficulties peculiar to such an event, and the movements necessary to gain relief. Dr. Kane's description of a scene in this particular time of extremity is too vivid and typical to omit or abridge:

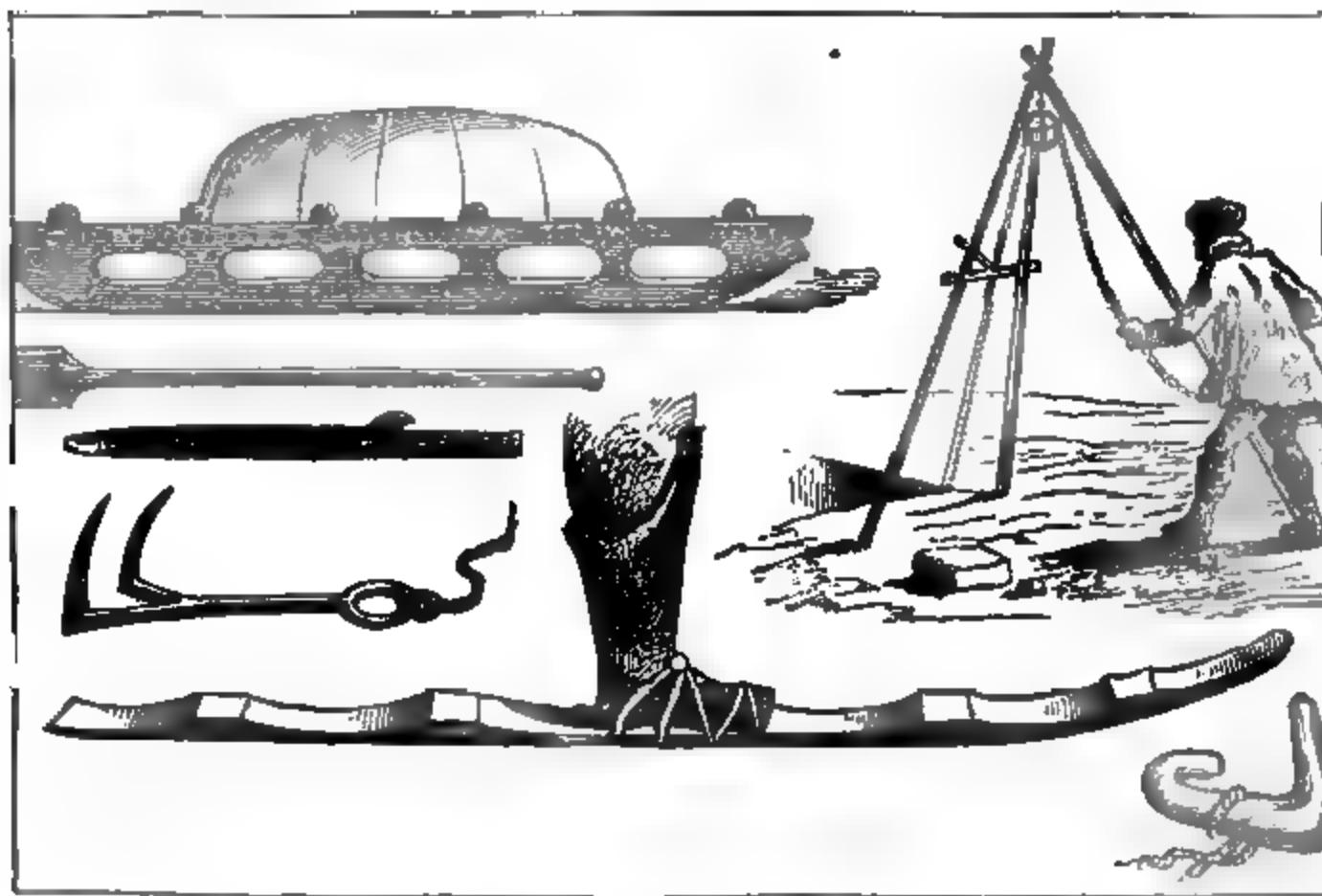
“ Let us begin by imagining a vessel or, for variety, two of them speeding along at eight knots an hour, and heading directly for a long, low margin of ice about two miles off. ‘ D’ye see any opening?’ cries the captain, hailing an officer on the fore top-sail yard. ‘ Something like a lead a little to leeward of that iceberg on our port-bow ! ’ In a little while we near the ice; our light sails are got in, our commander taking the place of the officer, who has resumed his station on the deck. * *

“ Now commences the process of ‘ conning.’ Such work with the helm is not often seen in ordinary seas. The brig’s head is pointed for the open gap; the watch are stationed at the braces; a sort of silence prevails. Presently comes down the stentorian voice of our commander, ‘ Hard-a starboard! ’ and at the same moment, the yards yield to the ready hands on the braces. The ship turns her nose into a sudden indentation, and bangs her quarters against a big lump of smashing ice. ‘ Steady, there! ’ For half a minute not a sound, until a second yell,—‘ Down, down! hard down ! ’ and then we rub, and scrape, and jam, and thrust aside, and are thrust aside; but somehow or other find ourselves in an open canal losing itself in the distance. This is a lead. * *

“ Looking ahead, we see that our lead is getting narrower, its sides

edging toward each other; it is losing its straightness. At the same moment came a complicated succession of orders: 'Helm-a starboard! 'Port!' 'Easy!' 'So!' 'Steady-ee!' 'Hard-a-port!' 'Hard, hard, hard!' (Scrape, scratch, thump.) 'Eugh!' an anomalous grunt, and we are jammed fast between two great ice-fields of unknown extent. The captain comes down, and we all go quietly to supper.

"Next comes some processes unconnected with the sails, our wings. These will explain, after Arctic fashion, the terms 'heave,' and 'warp,'



ARCTIC TOOLS.

and 'track,' and 'haul,' for we are now beset in ice, and what little wind we have, is dead ahead. A couple of hands, under orders, of course, seize an iron hook, or ice anchor, of which we have two sizes, one of forty, and another of about one hundred pounds; with this they jump from the bows and plant it in the ice ahead, close to the edge of the crack along which we wish to force our way. To plant an ice anchor, a hole is cut obliquely to the surface of the floe, either with an ice-chisel or with the anchor itself used pick-axe fashion, and into this hole the larger

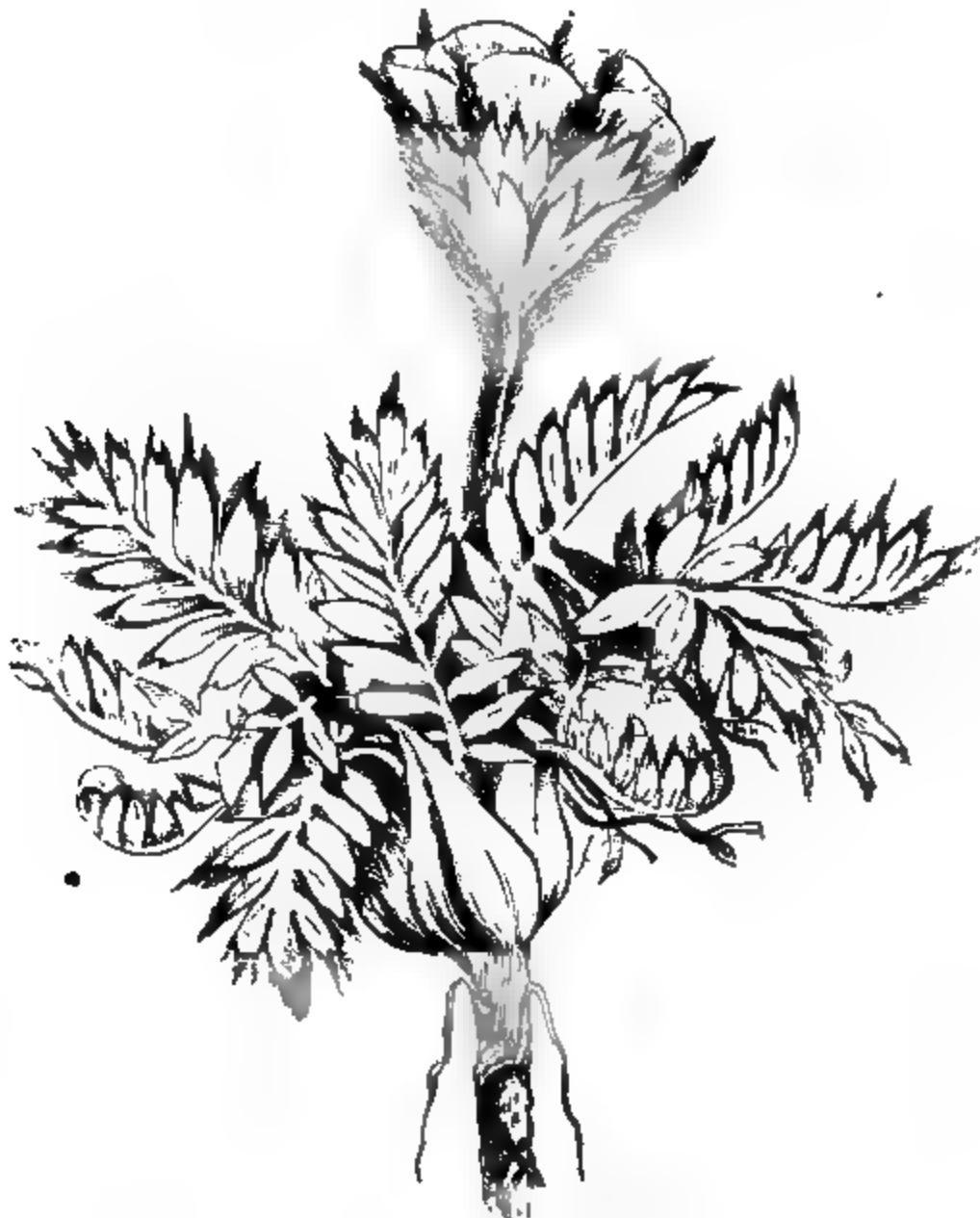
corner of the anchor is hooked. Once fast, you slip a hawser around the smaller end and secure it from further slip by a ‘mousing’ of rope-yarn. The slack of the hawser is passed around the shaft of our patent winch,—an apparatus of cogs and levers standing in our bow, and everything in far less time than it takes me to describe it, is ready for ‘heaving.’

“Then comes the hard work. The hawser is hauled taut; the strain is increased. Everybody, captain, cook, steward, and doctor, is taking a spell at the pump-handles, or overhauling the warping gear; for dignity does not take care of its hands in the middle pack, until at last if the floes be not too obdurate, they separate by the wedge-like action of our bows, and we force our way into a little cleft which is kept open on either side by the vessel’s beam. But the quiescence, the equilibrium of the ice which allows it to be thus severed at its line of junction, is rare enough. Oftentimes we heave and haul and sweat, and after parting a ten inch hawser, go to bed wet, and tired and discontented, with nothing but experience to pay for our toil. This is ‘warping.’”

For twenty-one days they were in this narrow strait between two continents of ice, part of the time immovable in relation to the pack, and part of the time edging their way along, a yard an hour, by means of their “eternal warping.” It was now August, and the season fit for search was passing away; the prospect of success was rapidly vanishing, and the ice-locked mariners were becoming nearly desperate; when a fortunate combination of winds, currents, and temperature released them, and they were able once more to continue their course.

But it was no quiet lake into which they made their escape from their icy besetment. Melville Bay presented itself to them in all its terrors. From the dark headlands looming up in the distance, a solid shore of ice projected itself for miles into the bay. Along this solid ice the great drift moves, impelled by the varying winds and currents, sometimes close to its edge, sometimes at such a distance as to leave a passable channel of open water. Down this channel the great icebergs came sweeping along; and more than once during their first night in the bay, all hands were called on deck to warp the vessels out of their course. Through the

channel, between the advancing floes and solid ice, the vessels made their laborious way, sometimes by towing, sometimes by their sails; but holding always upon their northwestward course. This transit across Melville Bay, a distance of not more than three hundred miles, consumed five entire weeks of a voyage whose success depends upon days, and even hours. A small steamer would have towed them across in a couple of days.



ARCTIC PLANT. (ACTUAL SIZE.)

As they skirted these icy shores, they not infrequently found opportunities to leave the vessels, and sometimes came upon spots amid snow and ice where the reflected rays of the sun formed a delicious little Alpine garden, green with mosses and carices, and surrounded with shrubs

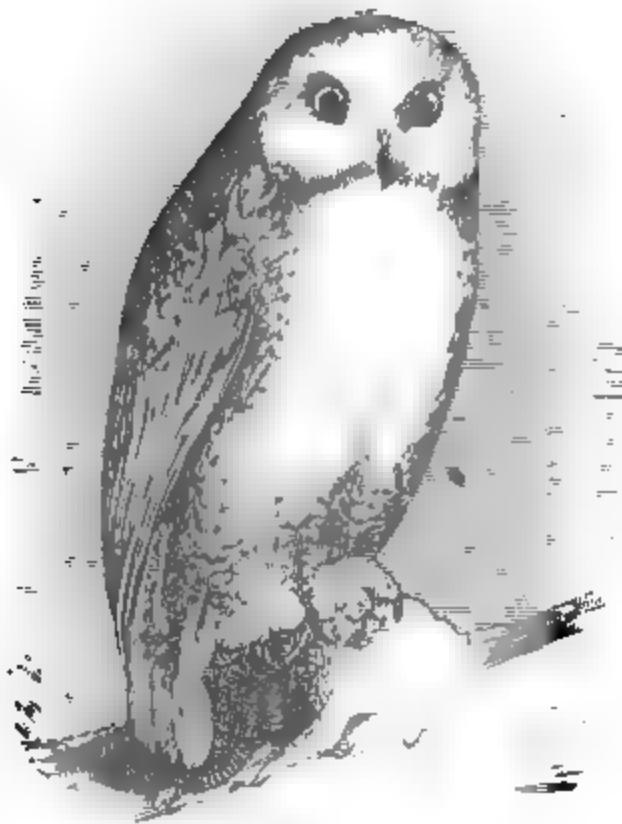
and trees—what passed for shrubs and trees, in the meagerness of Arctic vegetation; plants like those dwarf specimens produced by Chinese art. There was the wild blueberry in full flower and fruitage, yet so small that it might have been inclosed in a wine glass; wild honeysuckles, an entire plant of which might have been worn in one's button-hole; willows like a leaf of clover; trees, not one of which reached to the level of a man's knees, while the majority, clinging along the ground, scarcely rose to the height of the shoes of the navigators who towered above them like the giants of Brobdignag among the vegetation of Lilliput. The processes of nature, hampered or rather modified by the Arctic temperature, produce results quaintly differing from those to which we, reared in the climate of 40° - 50° , are daily witnesses. Kane had opportunity to measure the depth of the accumulating mosses of many years. In many places he found it five or more feet in height, and counted sixty-eight different layers indicating the fertilizing accumulations of as many years.

The auks had built their nests upon the rocks overhanging the miniature hot-beds, and the apparently easy ascent invited adventure.

"Urged by a wish to study the habits of these little Arctic emigrants at their homesteads, I foolishly clambered up to one of their most populous colonies, without thinking of my descent. The angle of deposit was already very great, not much less than 50° , and as I moved on, with a walking-pole substituted for my gun, I was not surprised to find the fragments receding under my feet, and rolling with a resounding crash, to the plain below. Stopping, however, to regain my breath, I found that everything, beneath, around, above me, was in motion. The entire surface seemed to be sliding down. Ridiculous as it may seem to dwell upon a matter apparently so trivial, my position became one of danger. The accelerated velocity of the masses caused them to leap off in deflected lines. Several uncomfortable fragments had already passed by me, some even over my head, and my walking-pole was jerked from my hands and buried in the ruins. Thus helpless, I commenced my own half-involuntary descent, expecting momentarily to follow my pole, when my eye caught a projecting outcrop of feldspar, against which the strong

current split into two minor streams. This, with some hard jumps, I succeeded in reaching."

By the middle of August it became evident that the expedition would be able to pass the ice, and would winter in the almost unknown regions of the Northwest. Their spirits rose when the ice-pack was cleared, and instead of threading the winding channels among the ice, they bade good-bye to the bay of the "famous Mr. William Baffin," and with full sails headed toward Lancaster Sound.



THE ARCTIC OWL.

CHAPTER L.

A COMPARISON—MEET WITH ENGLISH SQUADRON—SEARCH IN CONCERT—GRAVES DISCOVERED—VARYING CONCLUSIONS—END OF SUMMER—TOGETHER ONCE MORE—UNPLEASANT INFORMATION—AN UNPRECEDENTED DRIFT.

Probably most of those who read this book have been reared in the zone of the oak, the maple, and waving fields of grain; or some, perhaps, have passed their lives in a still more genial region, where the orange flourishes and the sun invites to a life of indolence, and sensuous enjoyment of Nature's lavish gifts. Such will find it hard to realize the condition and sensations of those who, like themselves, accustomed to the variety of temperate regions, have been transported suddenly to the land where continuous night or prolonged day is the rule.

The reader has been accustomed to night and day; he has felt the soothing influence of the twilight merging gradually into darkness, whose more somber hues invite repose and sleep; and he is used to the speedy return of day whose stimulating sunlight urges once more to activity. But in the long watches of Arctic life there comes no such pleasing variety. For six months the benighted Esquimaux or the chance adventurer mourns the absence of the light-giving orb; life-giving as well as light-giving, for in his absence health fails and the spirit sinks in depression and melancholy. On the other hand, joyous as is his appearance, when once he establishes his course above the horizon, his constant presence stimulates to unnatural and excessive activity. The hours of rest are broken. Meal-times tread upon each other's heels, and only the most rigid self-government can prevent a disastrous subversion of the accustomed order of everyday events. Such are some of the necessary obstacles in the way of those who would unravel the mysteries of Arctic life.

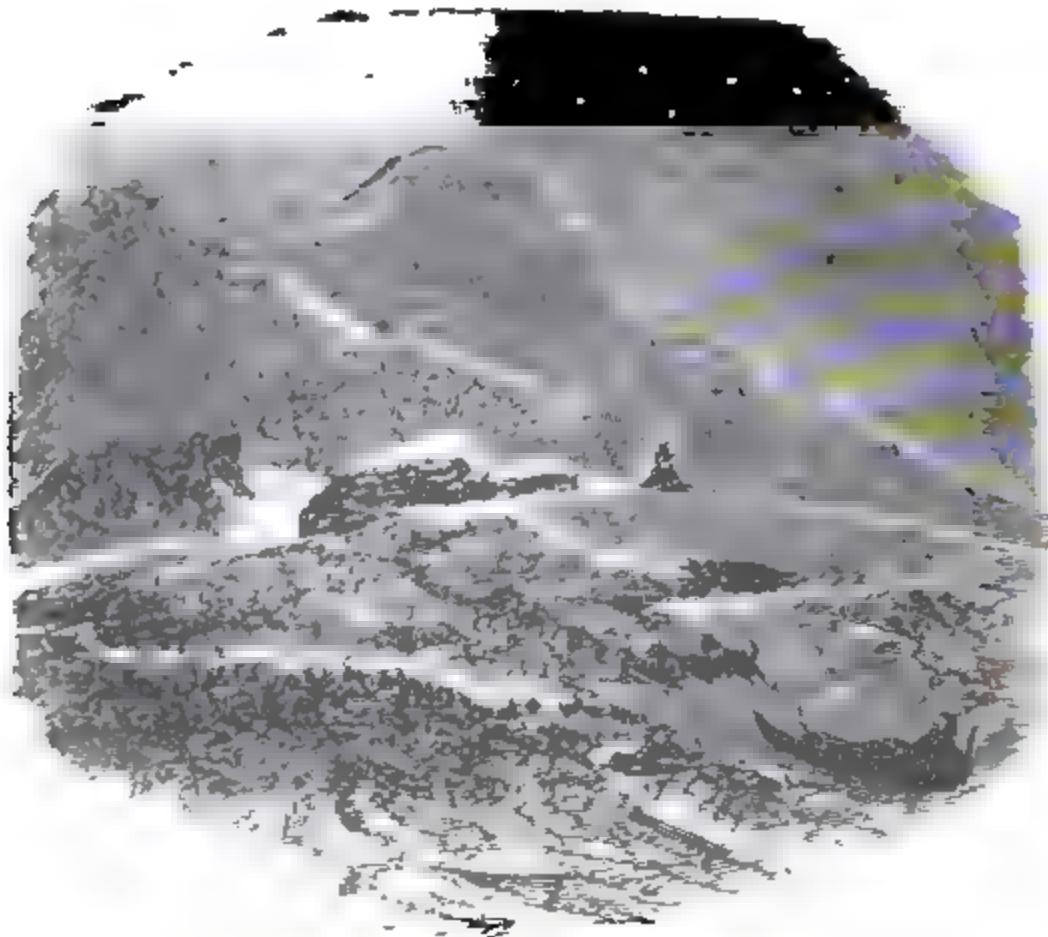
We left our little squadron speeding their way as best they could to Lancaster Sound. At three hours after midnight on the morning of the 21st, they overhauled the *Felix*, the foremost of the vessels of the British search expedition, under command of the brave old veteran Sir John Ross. "You and I are ahead of them all!" shouted the hale old Englishman in tones that rose above the noise of the winds and the ships' rigging. He had been cast away in this same country seventeen years before; had spent life and fortune in service of his country; and here he was again in a frail bark searching for the grave, perhaps, of a lost comrade. The next day, while checked by the barrier of ice shutting up the passage to Port Leopold, they were overtaken by the gallant little *Prince Albert*, Lady Franklin's own ship, fitted out to prosecute the search for her missing lord. Kane says of this interview:

"This was a very pleasant meeting. Capt. Forsyth, who commanded the *Prince Albert*, and Mr. Snow, who acted as a sort of adjutant under him, were very agreeable gentlemen. They spent some hours with us which Mr. Snow has remembered kindly in his journal which he has published since his return to England. Their little vessel was much less perfectly fitted than ours to encounter the perils of the ice; but in one respect at least, their expedition resembled our own. They had to rough it. To use a Western phrase, they had no fancy fixings—nothing but what a hasty outfit and a limited purse could supply." The journal referred to above reveals what Kane's modest narrative would never have disclosed—with what gallantry the American squadron led the way through the ice; and especially the bravery of Kane himself, whose brilliant ventures gained for him among the British the appellation of the "mad Yankee."

On the 27th the varying chances of the search in the contracted waters had brought together within a quarter of a mile near Beechey Head, five vessels belonging to three separate searching expeditions; Ross', Capt. Penny's, and their own. The greatest good feeling and disinterestedness prevailed among all. The whole-souled Capt. Penny had soon prepared a plan of action for the three parties. Some traces as it was supposed, of the missing mariners, had been discovered on Beechey

Island. Penny's plan was to assign different parts of the island to different parties; he himself would take the western search; Ross should run over to Prince Regent's Sound, and the American Expedition was to pass through the first openings in the ice by Wellington Channel to the north and east. These projects were just receiving preliminary discussion when a messenger was reported hastening over the ice.

"The news he brought was thrilling. 'Graves, Captain Penny! Graves! Franklin's winter quarters!' We were instantly in motion.



ON BEECHY ISLAND.

Capt. De Haven, Capt. Penny, Commander Phillips, and myself, with a party from the Rescue, hurried on over the rugged slope that extends from Beechey to the shore, and scrambling over the ice, came after a weary walk to the crest of the isthmus. Here amid the sterile uniformity of snow and slate, were the headboards of three graves, made after the old orthodox fashion of gravestones at home. The mounds which adjoined them were arranged with some pretensions to symmetry, coped and defended with limestone slabs. They occupied a line facing toward

Cape Riley, which was distinctly visible across a little cove at the distance of some four hundred yards. Upon these stones were inscriptions which conveyed important information; the first, cut with a chisel, ran thus:

‘Sacred
to the
memory
of
N. Braine R. M.
H. M. S. Erebus,
Died April 3d, 1846,
aged 32 years.

Choose ye this day whom ye will serve.

Joshua, chap. 24—15.’”

The other two epitaphs were very similar to the one just transcribed. The words of one—“Departed this life *on board* the Terror,” proved that, in the spring of 1846, at least, Franklin’s ship had not been wrecked. The evidences were plentiful that the expedition had passed a safe and comfortable winter. There was the anvil block and the traces of the armorer’s forge and carpenter’s shop; the trough which had served for washing a rude garment fashioned by a sailor’s hand from a blanket; a key; fragments of paper; the gloves of an officer washed and laid out to dry under two stones to prevent them from blowing away. There was a little garden-plot, with its transplanted mosses and anemones. There were the three graves already described, the headstones inscribed with scriptural text. Yet not a trace existed of any memorandum or mark to throw the least ray of light upon the condition or designs of the party. A melancholy interest attached to these relics, from the fact that they were the latest mementoes of the lost navigators; and every day was deepening the apprehension that they were the last tidings which would be had of them until the grave gave up its dead. Strangest of all was that Franklin, the practical, experienced navigator, grown gray in the perils of Arctic sailing, should have left no record of his achievements in the past months, nor of his needs or plans for the future.

Kane, ever wary and full of conjectures, did not see evidences of return or safety in the track discovered, nor in the fact that no record was left, and thought it probable that the party had left their quarters with the intention of returning. "A garden," says he, "implies a person either to remain or return; he who makes it is looking to the future." He thought that the party, tempted by an opening in Wellington Channel, had sailed away with the promptness that had always characterized the brave old commander, and were possibly exploring the open sea beyond, if living; or if not, that their remains would be found among the ice fields of the frozen north. And he accounted for the absence of a record, in the haste with which such a departure might naturally be made. These conclusions seemed very reasonable. That they were wrong everybody knows, but the course of reasoning by which they were arrived at, shows both the hopefulness and ready logic of their author.

With the close of August the brief Arctic summer began to come to an end. The sun traveled far to the south, and the northern midnight began to assume the somber hues of twilight. The ice was growing thicker and closer around the vessels, which vainly attempted to urge their way to the western shores of Wellington Channel. The thickness of the tables of ice sometimes reached fourteen feet, and huge hummocks were heaped up by the force of their impact to a height of forty feet or more, overtopping the decks, and threatening to topple down upon them. The great masses drifted past the vessels, usually just missing contact with them. On one occasion, however, the Rescue was caught bodily up by a drifting floe until the mooring cables parted, when she shot ahead into an open patch of water. The Advance escaped the impact by hugging close to the solid ice. The British vessels were less fortunate, being swept on by the resistless force of the moving mass.

During the early September days the cold began rapidly to increase. The thermometer fell by night to 21° , and rarely in the daytime rose above the freezing point. No fires had been lighted below. The historian of the expedition retiring to his narrow berth and drawing close the India-rubber curtains, lighted his lamp and wrote his journal in a freezing

temperature. "This is not very cold," he says, under date of September 8, "no doubt to your 45° minus men of Arctic winters; but to us from the zone of liriodendrons and peaches it is rather cold for the September month of watermelons." On this same 8th of September the American expedition had the mortification of seeing the English vessels in tow of their steamers shooting ahead of them right in the teeth of the wind. They felt that they were now the hindmost of all the searchers. "All have the lead of us," is the desponding entry in Dr. Kane's journal. Two days later, however, the two American and all the English vessels found themselves together once more, anchored fast to the solid ice, with the way to the westward impassably blocked up before them.

Now began the real and earnest perils of the expedition. On the 12th a storm arose, which swept the Rescue from her moorings, and drove her out of sight of her consort. It soon became evident that the great mass of ice to which they were moored, was slowly drifting, whither they knew not. The cold increased. The thermometers sank to 14° , then to 8° , then to 5° , yet no fires were lighted in the cabins of the Americans, though those in the British vessels were under full blast.

The next day the Advance fell in with her lost consort, partially disabled. It being evident that all further progress to the north and west was impracticable, the commander decided to turn his course homeward. But many a long and dreary Arctic night was destined to elapse before the vessels escaped from Wellington Channel.

Toward evening on the 14th of September, while the vessel was rapidly crunching her way through the ice that was forming around, the Doctor had retired below, hoping to restore some warmth to his stiffened limbs. It was a somewhat unpromising task, for the temperature in the cabin was close upon zero. The dull, grinding sound of the vessel laboring through the ice, grew jerking and irregular; it stopped, began again, grew fainter and fainter; at last all was still. Down to the cabin went the commander with the words: "Doctor, the ice has caught us; we are frozen up." And so it proved. There was the American Searching Expedition fast embedded in the ice in the very center of Wellington Channel. Here commenced that wonderful drift, which lasted more than

eight months, back and forth, through the Arctic seas, wherever the winds and currents impelled the continent of ice. No vessel was ever beleaguered so before; and probably no other one that had ever floated, would have escaped from such a beleaguerment. Before this the explorers had been so thoroughly busied in carrying out the objects of their voyage, that they had bestowed hardly a thought upon their own personal comfort or safety. With the thermometer at zero, they had no means of producing artificial heat in the cabin. The moisture from so many breaths had condensed till the beams were all a-drip, and everything bore the aspect of having been exposed to a drenching mist. The delay occasioned by their involuntary detention was put to some use, by fitting up a lard lamp in the cabin, by which the temperature was raised to twelve degrees above the freezing, or 44° above zero. This degree of warmth was accounted a positive luxury. So, in uncertainty and gloom, they drifted to and fro, sometimes to the north, and sometimes to the south, in the "waste of waters."

The animal life with which the region had heretofore been teeming, now almost wholly disappeared, and to this fact was added the apparently precarious condition superinduced by the bondage of ice. Some of the smaller and more hardy animals and birds still remained, but these were in small numbers, while the most of the seals, the polar bear, and all that gave occasion for exercise, and afforded nourishment and incident, had vanished. As the weather became more severe, the danger of being "nipped" or caught between two masses of ice and perhaps crushed, became more and more imminent. Ten days after they were frozen in, occurred the first of the fearful nips with which they were soon to become familiarized.. A field of ice fourteen inches thick, overlaid with an additional half foot of snow, is driven, with a slow and uniform motion, directly down upon the helpless vessel, which is half buried beneath the shattered fragments. The force behind impels the broken fragments upward in great tables rising in large mounds above the level of the deck, and threatening to topple over and overwhelm the vessel. Other fragments take a downward direction, and slide below the brig, which is lifted sheer out of the water, and rests unevenly upon shattering blocks

of ice. Amid darkness and cold, and snow, and deadly peril, all hands are called aloft with crows and picks, to "fight the ice" that rises around. Well was it that the ice which thus drifted down upon them was the new ice just forming. Had it been the solid mass of later winter, no fabric that man has framed of wood or iron could have withstood it. As it was, the ice which was now their assailant, became afterward their protector, and warded off the collision with other packs against which they subsequently drifted. By the 1st of October the icy setting around them had become so firm, that for a time they experienced something like repose.

Deliberate preparations now began to be made for passing the winter in the ice. Stoves and fuel were brought up from the hold, and with the thermometer at 20° below the freezing point, the work of manufacturing a stove pipe was undertaken. Embankments of snow and ice were made about the vessel, in which was deposited coal and stores. But alas, for the stability of Arctic weather! Hardly was this accomplished when the floe began breaking up, and all hands, officers and men, set to work to replace the stores upon the vessel. So insecure was still the position of both vessels, that it was not till the 19th of October that they were able to set up stoves in the cabin, and for warmth they were still forced to rely upon the lard lamp. So accustomed had they become to a temperature but a few degrees above the freezing point, that they would have been quite content had it not been for the perpetual moisture dripping from the roof and sides, a circumstance full of danger to those having a scorbatic tendency. This was at last mitigated in some degree by canvas gutters, by which several cans full of water were daily collected, which would otherwise have fallen upon the floor.

The experience of Kane well illustrates the power of the human system to adapt itself to varied circumstances. Only a few months before he was in the warm regions of the Gulf, luxuriating in its tepid waters, and basking in its sunshine. Now he contentedly watched for hours by a seal hole in the open air, with the thermometer 20° degrees below the freezing point, and if successful in shooting it, ate of its raw flesh with a relish.

The long Arctic night, or rather succession of nights and days (for, although midnight and noon were scarcely distinguishable, they still managed to separate them in their chronology), was varied as far as possible by races, games and seal hunting, although the seals had become scarce and more than usually shy. Kane speaks, in his characteristic manner, of killing one of these reticent animals:

"To shoot seals one must practice the Esquimaux tactics, of much patience and complete immobility. It is no fun, I assure you, after full experience, to sit motionless and noiseless as a statue, with a cold iron musket in your hands, and the thermometer 10° below zero. By and



SHOOTING SEALS.

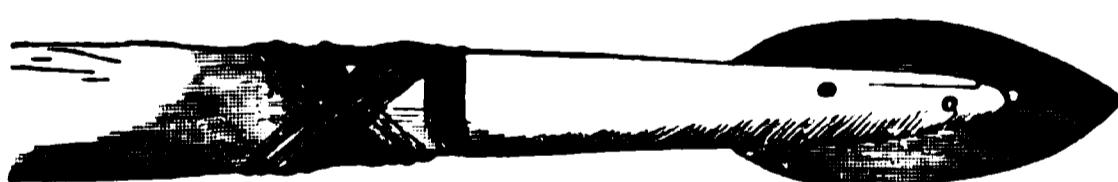
by I was rewarded by seeing some overgrown Greenland calves come within shot. I missed. After another hour of cold expectation they came again. Very strange are these seals. A countenance between the dog and the wild African ape, an expression so like that of humanity, that it makes gun-murderers hesitate. At last, at long shot, I hit one. God forgive me!

"The ball did not kill outright. It was out of range, struck too low, and entered the lungs. The poor beast had risen breast-high out of water, like treading-water swimmers among ourselves. He was looking about with curious and expectant eyes, when the ball entered his lungs.

"For a moment he oozed a little bright blood from his mouth, and looked toward me with a startled reproachfulness. Then he dipped; an instant after he came up still nearer, looked again, bled again, and went down. * * * The thing was drowning in the element of his sportive revels. He did drown finally, and sank; and so I lost him."

"Have naturalists ever noticed the expression of this animal's phiz? Curiosity, contentment, pain, reproach, despair, even resignation, I thought I saw on this seal's face."

Thus passed the month of October, during which the expedition was drifting about near the outlet of Wellington Bay, in a general southern direction, although a south wind would occasionally force them back to the north. But it soon appeared that the progress in this direction was impeded by more compact ice, and by a steady current; while a north wind drove steadily before it the thick floe in which they were embedded.



CHAPTER LI.

ARRANGEMENTS—ICY ANALOGIES—DEPRESSING INFLUENCES—INGENIOUS REMEDIES—THE HISTRIONIC ART—THREATENED BY A BERG—THE SUN RE-APPEARS—THE ICE-SAW—THE GRAND BREAK-UP—TOWARD THE GREENLAND COAST—A SHORT RESPITE.

The 9th of November found the arrangements for the winter complete. Over the entire deck of the Advance was thrown a housing of thick felt, resting on an improvised ridge-pole running fore and aft. Under the main hatch was the cook's galley, with its pipe running through the felt roof above. Around the pipe was built an apparatus for melting ice, to supply them with water. The bulk-heads between the forecastle and the cabin were removed, throwing both into one apartment, occupied by both officers and men in common. As the crews of both vessels were collected in the Advance, this small room was the home of thirty-one persons. Warmth was distributed through the cabin by three stoves besides the cooking galley; and as the unbroken night set in, four argand and three bear's fat lamps supplied the place of sunlight. Need enough was there for all this heating apparatus, for before the winter was fairly begun the temperature was 40° below zero.

Fancy a day in the ice, as spent by the ice-fettered explorers. At half-past six by the chronometers, the crew are called; the officers a half an hour later. Their ablutions must be performed first, to wash off the soot and grim accumulated during the night. This is accomplished in half-frozen snow water. Then the toilet must be made. Three pairs of socks, several undershirts and outer robes of fur, the whole complemented by a cap and hood of sealskin, must be donned; and all hands take a turn on deck, to get up an appetite for breakfast. This is found necessary, for the nameless stenches connected with the sleeping room, kitchen

and larder combined, suffice to completely nauseate the "stoutest stomach of them all."

Nothing better showed the extremity of the weather than the condition and appearance of the various articles of provisions. Everything was transformed into some grotesque analogy of itself. All vegetables were pebbles of assorted varieties. Frozen meat was hard as building stone. The fat of the bear and the seal—liquid at respectably low temperature, were like marble; a pleasing assemblage of figures moulded and carved from nature *by* nature.

The extreme temperature and the absence of the sun began to tell upon the health and spirits of the men. In more temperate regions we learn to recognize the tendency to rheumatic diseases and depression of spirits occasioned by even a few days of cloudy weather. This condition was fulfilled to perfection in the case of our explorers. All faces began to assume a livid paleness, like plants growing in darkness. The men grew moody and dreamy. They heard strange sounds in the night, and had wonderful visions in their sleep. One dreamed of wandering off among the ice and returning laden with watermelons; another had found Sir John Franklin in a beautiful cove lined with orange trees; and a third, in the half-delirium of his mental wanderings, had heard his wife and children crying for help. All were particularly sensitive to supposed slights or effrontery on the part of the rest. This led to unpleasant feelings and painful scenes. The officers alone, by strict guard upon their tongues, managed to keep up a show of good feeling. Sickness appeared in new and peculiar forms, and the genius of our physician and author was taxed to the utmost to provide for the sanitary necessities of the party. As is usually the case, the scurvy-afflicted adhered to the fatal diet of salt meat, and cunning had to be resorted to, in order to save them from themselves. As they would not eat the anti-scorbutic food provided, the doctor prepared a sort of beer from his little store of vegetables. Olive-oil and lime-juice, raw potatoes, saur-kraut and vinegar combined, made a delectable compound which the men drank greedily. So successful was this treatment that, as we shall see, not one of the crew was lost.

Christmas Day was spent with as much merry-making as could be contrived in the almost total absence of resources. Some bottles of champagne remained, and the French cook prepared an elaborate dinner. Mr. Bruce, one of the crew, and possessed of divers qualifications, had contrived a play, and the crew had undertaken to produce it upon an extemporized stage. "Never," says Kane, "had I enjoyed the tawdry quackery of the stage half so much. The theater has always been to me a wretched simulation of realities; and I have too little sympathy with the unreal to find pleasure in it long. Not so our Arctic theater. It was one continual frolic from beginning to end."

"The 'Blue Devils': God bless us! but it was very, very funny. None knew their parts, and the prompter could not read glibly enough to do his office. Everything, whether jocose or indignant, or common-place, or pathetic, was delivered in a high tragedy monotone of despair; five words at a time, or more or less, according to the facilities of the prompter. Megrin, with a pair of sealskin boots, bestowed his gold upon gentle Annette, and Annette, nearly six feet high, received it with mastodonic grace. Annette was an Irishman named Daly; and I might defy human being to hear her, while balanced on the heel of her boot, exclaim in rich masculine brogue, 'Och, feather!' without roaring."

Other amusements followed in like style, but the desolateness of their condition, their separation from home and friends, and the absence of the means and opportunity for obtaining help and sympathy, nearly stifled all attempts at merriment. New Year's Day was passed in much the same way, varied by a race for a purse of three flannel shirts. This effort exhausted most of the men, showing the debilitated condition into which they had fallen. In the meantime Lieut. DeHaven had grown almost helplessly sick, and being confined to his bed, Commander Griffin became the executive officer of the combined crews.

From the 8th of December to the 11th of January, the floe in which they were fastened had steadily increased in solidity till it seemed scarcely less firm than the granite ranges which girdle a continent; and firmly embedded in it the vessels enjoyed a season of comparative respite from danger. The Advance all this time lay with her bows sunk in the snow

and ice, and her stern elevated some five or six feet; she also canted over to starboard, so that walking her deck was up-hill work. During this time her bare sides had been “banked up” with snow as New England and other farmers bank up their houses at the approach of winter. On the 12th of January a sudden shock brought all hands upon deck. A fissure appeared in the ice-plain which soon widened into a broad passage, through which the large fragments bore right down upon the vessel. At one hour past midnight the crew stood on deck strapped and harness ready, to take to the ice. Right down upon them bore the large hummock upon the vessel’s stern,—a mass solid as marble, thirty feet square at the base and rising twelve feet out of water; it stops, then advances; it approaches so near the vessel that hardly enough room is left to admit of a man’s walking between. That narrow channel crossed, and no human art could construct a fabric which would resist the ice-hill’s terrible might. That passage was never crossed. The huge mass stopped; clung to the stern; became impacted there; and for months remained in the same place as a ghostly memento of the narrowly-escaped destruction. Even while they had prepared to leave the ship, the question arose, Whither should they go? The Rescue, their disabled consort, was scarcely an eligible place of safety, and they had drifted far, far, from the coast. Indeed, they had already drifted well toward Baffin’s Bay. What would be the consequence when the two great oceans of ice should meet?

The approach of Arctic day was hailed with great joy and anxiety, and both officers and crew prepared to make suitable demonstrations for the appearance of the god of day. Day by day, the rosy tints shot up further, and seemed to the waiting adventurers to bode an end to all their trials. The day when the sun could be seen for the first time was reckoned to be January 29th—after an absence of eighty-six days. The crew were out ready to give three cheers to the great planet as it marked in a short period the conjunction of sunrise, noon, and sunset. Dr. Kane had separated from the rest, and witnessed the scene by himself. Never did the radiant orb receive more hearty welcome from devout Parsee, than was given him on this day. “I looked at him,” says Kane, “thankfully,

.with a great globus in my throat. Then came the shout from the ship—three shouts—cheering the sun."

We must pass over the following days during which, although the sun was constantly rising higher, the temperature was still insupportably low. It was not till near the close of March that the broad ice-pack began fairly to open, and a broad reach of water spread before the eyes of the voyagers, weary of the perpetual gaze upon ice, stretching beyond the reach of vision. From this time the process of their liberation went slowly but surely on. The prevailing northerly winds drifted the floe toward more genial latitudes. Frost-smoke began to arise from the ice. A slight moisture became perceptible; the paths along the vessel's side became soft and pulpy. The men, long accustomed to an Arctic temperature, complain that "it is too warm to skate, though the thermometer indicates a temperature of 10° below freezing. At last, on the 10th of April that unerring monitor rose to 32° at noon-day. Up to freezing again! Very soon the cabin-lamps were put out. The crews cut the ice from about the Rescue, and she was once more manned in readiness for release. The felt covering was taken from the deck of the Advance, and daylight prevailed throughout the Arctic regions.

Early in May the ice-saw was put in operation as a preliminary attempt at freeing the vessel. Parallel tracks were cut of convenient width, and the ice sawed away in blocks, and hauled to the edge of the floe. Thus the open lead was daily brought nearer. In a short time the Advance was surrounded on all sides by these floating barricades. Shortly, too, the ship showed signs of changing her position, grating a little on the moving ice, and seeming to advance a few inches upon the remainder of the floe. Desperate endeavors were made to wrench the vessels clear from their icy moorings by means of strong tackle and determined pulls, but in vain; they would not float level upon the water till the grand break-up occurred. Meantime the summer was hastening on. Evidences of coming final disruption were multiplying about them. Animal life increased, birds were flying in every direction, and seals and whales were playing on every hand. The floe on which the ships were cast had become reduced to a small patch.

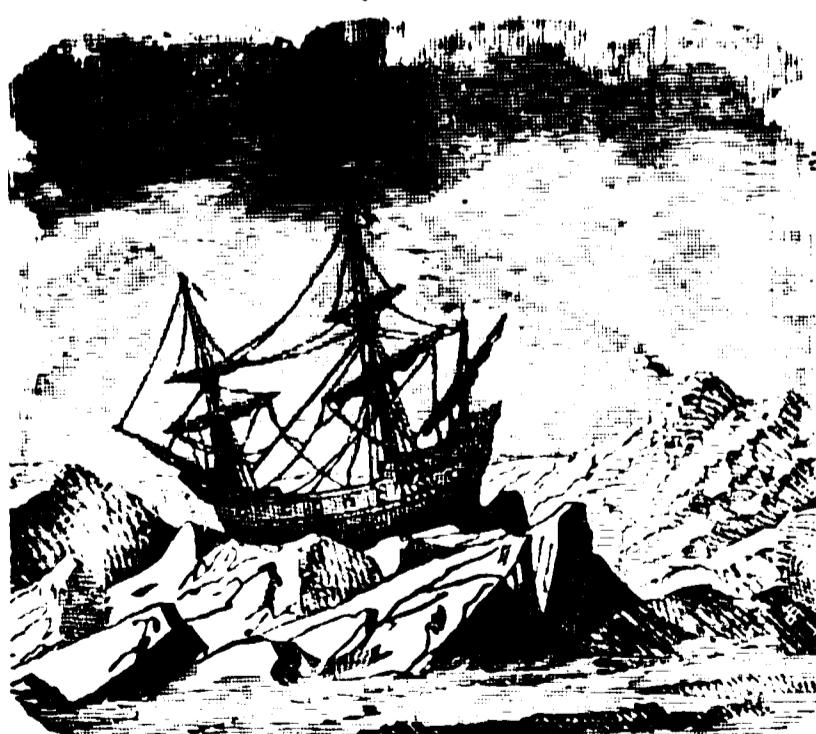
On the 29th of May land was seen—one of the capes of Greenland, for they had been drifting down Baffin's Bay with the wind and current for several months. How suddenly and completely they had been cut off, not only from the means of search for Sir John Franklin, but also from the place where it was now evident that search should be made!

The 5th of June witnessed the grand break-up. Commander Griffin, the commanding officer of the *Rescue*, had walked across the ice for a call on his friends in the *Advance*. He had just started for home when a cry arose that there was a crack in the floe. Sure enough, there appeared a crevice in the ice between the two ships, and water flowing between the ice-sheets. Reaching the crack hurriedly, he had just time to spring across its widening surface, and escape to his ship. In ten minutes more there was water all around the *Rescue*, and in half an hour both vessels floated in their element. A large piece of ice, however, clung to the stern of the *Advance*, and by its great buoyancy held her posterior up almost out of water, while her bows suffered a corresponding depression. Finally, about noon on the 8th of June, one of the officers was in the act of clambering down on this attached mass. Hardly had his foot touched it when it parted from the vessel. He scrambled hurriedly up the side, tearing his nails and clothing in his haste, just in time to escape the huge block as it surged up to the surface. The *Advance* was free at last, and floated level with open water all about her.

Although now clear from any direct attachment of ice, the remaining portion of the journey to the coast of Greenland was a somewhat uncomfortable task. It was too warm to have fires in the cabin, and yet the growing dampness of the warmer climate, increased by the pressure of icebergs, made fires extremely desirable. In spite of the seal meat, of which they now had some reinforcement, the scurvy, deep-seated and persevering, broke out again; and it was evident that the tedious process of regaining lost health must be gone through with before any new adventures could be attempted. Many of the sailors were ill from shore excesses when the vessel left New York, and the circumstances of the winter were such as had been most favorable to the reopening of old wounds, and the revivification of slumbering virus. Icebergs, in great

numbers, worn and carved by the water's action into many grotesque shapes, crowded around them, and impeded their progress; and insignificant as the remaining distance was, it caused a painful effort, in the exhausted and debilitated condition of the party.

Lieut. DeHaven, who had now recovered sufficiently to take charge of the expedition once more, had decided to recuperate at Whalefish Islands, off the coast of Greenland, for a few days, and hasten back to Melville Bay, Barrow's Strait and Lancaster Sound, and renew the search which their untimely besetment had curtailed. Every man concurred heartily in the plan. It is true, they were worn and weary; but they had had the seasoning which a winter in the ice alone can give, and considered themselves as veterans, well fitted by experience for continued service. As they drew near the coast the same appearance presented itself which they had witnessed a year ago; only they themselves had lost the freshness and buoyancy with which they had approached the same coast in the preceding summer. The destined port was reached on the 16th of June. Dr. Kane, with five others, was dispatched to the shore. Esquimaux crowded the bank, dogs barked, and children yelled. So, after a short pull, ended that marvelous nine months of besetment, drift, toil and disease.



CHAPTER LII.

A PLEASANT PARTY—CULTIVATED TASTES — DANGEROUS FEATS — THE NATIONAL DAY—BOUND FOR THE NORTH AGAIN — ESCAPE FROM MELVILLE BAY—HOMeward—RESULTS OF THE VOYAGE.

The remainder of the story of the expedition might be easily summed up. After allowing themselves five days for recruiting, they were again on their way to the north. This second journey was peculiarly rich in incident and in experience with the natives, with whom the fortunes of the past year had not allowed them much communication. All of the principal places on that coast were touched at, each one furnishing its list of pleasing happenings. As the fleet landed near Prøven, a Danish Esquimaux town well to the north, a merry party of Esquimaux came out to greet them, dragging their kayaks after them over seven miles of the pack, and then spinning out to them over the narrow channel of water. These were soon followed by a yawl load of the gentry of the place. The reader will best enjoy the account of this occasion in Dr. Kane's own words: "She (the yawl) brought a pleasant company. Unas, the schoolmaster and parish priest, Louisa, his sister, the gentle Amalia, Louisa's cousin, and some others of humbler note. The baptismal waters had but partially regenerated these savages. Their deportment, at least, did not conform to our nicest canons. For the first few minutes, to be sure, the ladies kept their faces close covered with their hands, only withdrawing them to blow their noses, which they did in the most primitive and picturesque manner. But their modesty thus assured, they felt that it needed no further illustration. They volunteered a dance, avowed to us confidentially that they had cultivated tastes—Amalia, that she smoked, Louisa, that she tolerated the more enlivening liquids, and both that their exercise in the open air made a slight refection altogether acceptable. Hospitality is the virtue of these wild regions; our hard tack, and cranberries, and rum, were in requisition at once.

"It is not for the host to tell tales of his after-dinner company; but the truth of history may be satisfied without an intimation that our guests paid niggard honors to the jolly god of a milder clime. The veriest prince of bottle memories would not have quarreled with their heel-taps."

Some of the feats performed by the natives in their kayaks were truly remarkable. The process of turning a somersault in the water, boat and all, seems an impossible one, but its practicability among the Esquimaux is attested by many witnesses. An active male will seize a large stone in both hands, and leaning backward, will disappear, to return almost instantly, still holding the stone. But this species of aquatic performance is hardly more remarkable than the process of catching a seal, and is certainly not as dangerous. The former feat is exhibited by the half-day for a chew of tobacco or a glass of grog. The latter is dared because hunger and the domestic necessity demand it.

Here at Pröven the parties celebrated the national anniversary in the best manner that their limited means permitted. By way of salute, and in lieu of gunpowder, the seamen rolled a huge boulder down the cliffs, "spliced the main brace by means of egg-nog, made from the eggs of the eider-duck, and wound up with a ball in which some of the Esquimaux belles figured conspicuously. Putting to sea on the 5th, they succeeded in working their way northward, and on the 13th they encountered their old acquaintance, the Prince Albert, from which they had been separated in the besetment of the month before. This vessel, though under a new command, was back more once upon the same mission as themselves. The two expeditions kept together for three weeks. By watching every opening in the ice they managed to make a few miles of northing every day, which brought them early in August to the dreaded Melville Bay, over which the "Devil's Thumb" kept solitary guard. Here they found the ice more impracticable than the year before. The icebergs came down, threatening them with instant destruction. The leads were all closed, and solid ice blocked up the passage across the bay. The British abandoned the idea of succeeding in that direction, and proceeded to the south, there to continue their unsuccessful search.

Still the Americans held grimly to their purpose, and remained moored to a land-floë waiting for the ice to part and allow them to pass to the west. But no opening came; the way was still blocked. The season was not so favorable as the former one had been. Only a few weeks of summer remained, and to remain in the ice of Baffin's Bay another nine months was not to be thought of as a wise course for the scurvy-riddled crew. The commander, therefore, wisely referring to a clause in his formal instructions counseling him "to spend only one winter in the Arctic regions," resolved to set sail for home at the first opportunity. Watching their chance, they one day noticed a lead to the south, in the tremendous ice-barrier. Toward this they steered, and entered, in awe-struck silence, the scanty passage opened before them. Any closing of this frightful mouth would have been instantly fatal, but it was passed in safety, and the escape from the "Devil's Nip" was a proverb among them for many days.

Once pointed for home, not much remains to tell of the rest of the journey. They touched at Upernavik, Disco, and Holsteinberg, and enjoyed the hospitality of the kindly Danes and Esquimaux, who were well-bred enough not to laugh at their ragged, distressed appearance. With faces sharpened by the pinchings of hunger and cold, beards unshorn, and limbs tottering from sheer weakness, they were, as Kane expresses it, "an uncouth, shabby, and withal, snobby-looking set of varlets." Their own flimsy wardrobes had become exhausted, and they had been obliged of late to resort to domestic tailoring. "I wish," says Kane, "that some of my soda-water-in-the-morning friends could see me perspiring over a pair of pants. We do our own sewing, clothing ourselves *cap-a-pie*; and I am astonished in looking back upon my dark period of previous ignorance, to feel how much I have learned. I wonder whether your Philadelphia tailor knows how to adjust, with a ruler and a lump of soap, the seat of a pair of breeches."

But the trials and privations to which for over a year they had been exposed, were soon to end. Leaving Holsteinberg on the 6th of September, the two vessels were separated in a gale off Cape Farewell. After a run of twenty-four days the Advance arrived at New York on

the 30th of September. The Rescue arrived safely seven days later; the greatest gratitude prevailing among all, for their safe deliverance from so many dangers of shipwreck, death, and disaster.

It now remains to speak briefly of certain things that have been, up to this point, purposely neglected. In the desire to make the narrative continuous and complete, no attempt has been made to state concisely or minutely the course of the expedition, nor the geographical results which may properly be claimed for it. This, with the indulgence of the reader, we will now attempt to do.

The slightest attention to the geography of North America, will make the course of the party, until after leaving Melville Bay, perfectly plain to any observer. Not so perhaps, their wanderings after entering Lancaster Sound, and the labyrinth of waters which makes the navigation of the northern coast of North America perplexing and dangerous. Entering Lancaster Sound according to official instructions, the expedition pursued a course almost directly west through Barrow Straits as far as Beechey Island, near which place the meeting with the English squadron took place, and where the discoveries before mentioned were made. From here a zigzag course was pursued along the islands on the north of Barrow Strait, as far west as Griffith Island, some fifty miles to the west of Wellington Channel. The vessels then returned to Wellington Channel, where they were beset in September, and where the memorable drift began whose principal events have been recorded in the preceding pages. The course of the drift during the month of September was almost wholly northward, and the upper extremity of the Channel was almost reached before the influence of the currents and winds changed the direction of the ice field in which they floated, and a southward course was begun. Back they went, over nearly the same ground that they traveled in ascending the channel. Following the course of the immense ice prairie which had now accumulated about them, they drifted slowly eastward into Baffin's Bay, and thence southeast until, as we have seen, they were released, after nine months of drifting, near the coast of Greenland.

In the meantime, in the drift to the northward, certain natural

divisions had been discovered, and received names from the American party. These discoveries, while they were of no great practical value, were still supposed, at that time, to be of importance in confirming a theory which was gaining ground during the middle of the nineteenth century, namely, that about the Pole were land and water of comparatively mild temperature—perhaps^{*} inhabited, and certainly capable of sustaining animal life.

These discoveries were announced in Lieut. De Haven's formal report to the Secretary of the Navy, in substance as follows:

"Between Cornwallis Island (already long since discovered) and a large mass of elevated land to the north, was seen a large open channel leading to the westward. To this was given the name of 'Maury's Channel,' in honor of the then chief of the Hydrographical Bureau, and the National Observatory. The large body of high land seen to the north between N. W. and N. N. E., was termed 'Grinnell Land,' in honor of the head and heart of the man in whose philanthropic mind originated the idea of this expedition, and to whose munificence it owes its existence."

A remarkable peak on the eastern visible extremity of the unknown land was termed Mt. Franklin, with obvious fitness. Several other unimportant discoveries were made; among them a small island which was named after Mr. Murdaugh, the acting master of the Advance, and an inlet, discovered by Mr. Griffin, the commander of the Rescue, was aptly named from its discoverer.

It is proper to remark in this connection that the matter of precedence in the discovery of the so-called Grinnell Land above mentioned, became a subject of unfortunate controversy between English and American geographers and explorers. English geographers, in certain maps published in the latter part of 1851, plotted this tract of land and named it Prince Albert Land, announcing it as the discovery of Capt. Ommaney, confirmed more recently by the explorations of Capt. Penny. This map was supplemented by a foot-note mentioning the fact of the American claim, and stating that a certain other tract of land bearing some 60° or 70° to the westward must have been the Grinnell

Land announced by the American squadron from that drift of September, 1850. The injustice of this course was easily seen from the following facts: Capt. Ommaney was proved to have been a hundred miles south of this land at the date on which he is claimed to have discovered it. As the American squadron was only forty miles from it at the time its leader first sighted the new coast, and as it was barely visible then, disappearing upon the vessels retreating only a few miles to the south, it followed that Capt. Ommaney, sixty miles still farther south, could not have, as was professed, seen and named this new verge of a possible Arctic continent. Again, as the American squadron was well supplied with chronometers and other instruments, it was hardly possible that the able leader of the expedition should have made an error of 60° , as the English aspirants for precedence and prestige would have attributed to him. To be sure, the Americans were carried thither without any choice of their own, and it was under circumstances beyond their control that they preceded the British party in the matter in controversy; but, as Dr. Kane laconically observes, "They *did* precede them," and thus, without doubt, established the claim of discoverers, and the right of designation. In bringing forward this discussion, the writer has endeavored not to allow natural prejudice to influence him in presenting the facts, and he is not conscious of having violated any rule of international etiquette. All American geographers, and we are glad to note, some also of English authorship, continue to give the land in question the American designation, thus vindicating, after three decades, the American claim.



CHAPTER LIII.

EXPEDITION OF INGLEFIELD—IN THE NAVY YARD—THE CREW—ADVERSE INFLUENCES—AT FISKERNÆS—GREENLAND PIETY—DEVIL'S THUMB—VARIOUS DISCOVERIES—NEARLY SHIPWRECKED—A WATCHFUL BEAR.

The screw schooner, Isabel, was, it seems, originally fitted out by Mr. Donald Beatson for a cruise to the Arctic regions in search of Sir John Franklin by way of Behring's Strait. This expedition, however, owing to unavoidable difficulties, was abandoned, and the ship, with five years' provisions for twelve men, and a small, high pressure engine of sixteen-horse power, which had been fitted to drive an Archimedian screw, besides having been doubled, strengthened, and covered as far up as the heads with galvanized iron, was thrown back upon the hands of Lady Franklin, the original owner. It was then offered to the admiralty for Arctic service; but their lordships not caring to inaugurate any more Arctic expeditions, declined the offer.

A proposition was then made by Lady Franklin to Commander E. A. Inglefield to the effect that he should take the vessel, provide a crew and such other details of equipment as the vessel should require, and that he should take the provisions now on board, and, joining the squadron at present in the Arctic regions, deposit with them his provisions, and return the same season to England. Capt. Inglefield had little relish for being employed merely as a transport captain, but seeing how well fitted the vessel was for Arctic cruising, he accepted Lady Franklin's liberal offer to give him the ship in compensation for his services, providing that he could be allowed to conduct a search in any manner he saw fit; provided, also, that he could obtain leave of absence from the Lord Admiral, and be allowed to have his vessel fitted up in a government yard.

As he had already expressed his taste and willingness for Arctic explorations by volunteering on several previous occasions to join a search for Sir John Franklin, and as he further believed that Franklin could be found, or that he could be followed over the route which he had chosen, he regarded this opportunity as too tempting to be lost; and as the admiralty granted him in full the permission he desired, he lost no time in acquainting Lady Franklin with his decision.

With the divers appliances on hand at the navy yard it was a comparatively short task to fix up the little schooner, and with the engine thoroughly examined, provisions well stored, sails duly repaired, and ship considerably strengthened, together with the addition of sledges, tents, traveling and cooking apparatus, and innumerable articles which many friends found the means of supplying, Inglefield was ready to move out of the basin on the 4th of July, 1852.

After taking leave of his friends, the Lord Admiral and Lady Franklin, Inglefield caused his vessel to be towed out of the harbor, and was soon speeding up along the coasts of England and Scotland. His plan of search was briefly as follows: His first object was to arrive at Whale, Smith and Jones' Sounds by either the eastern or western shores, ascending as he might find that the state of the ice would enable him to do, and having thoroughly examined these sounds, bays, inlets, or whatever they turned out to be (for there was then no accurate knowledge of them), he would, if not forced to winter so far north, proceed down the western coast of Baffin's Bay, exploring its shores as far south as Labrador.

In order that he might intelligently communicate with the natives, he hoped, at Holsteinberg, or some other Danish town, to procure an interpreter, and with this in view he had taken with him a letter to the Danish authorities of Greenland, requesting for him their assistance, should he be in need of it.

If the lateness of the season or any other cause should oblige him to winter at Lancaster Sound or north of it, he hoped by means of his sledges to be able to communicate with the royal squadron, as well as to make a careful search of all the deep inlets of Baffin's Bay; and thus,

even if unsuccessful in the great object of his voyage, he hoped to settle forever the vexed question of the entrance into the Great Polar Basin through the so-called Smith's Sound, which before his voyage had never been approached nearer than within seventy miles.

After stopping for their last letters at Peterhead, on the coast of Scotland, they steamed away, and were soon out of sight of land.

The crew and officers who composed this "little band of spirited adventurers," as the newspapers spoke of them at the time, numbered seventeen, and consisted of two ice-masters and a mate, a surgeon, an engineer, a stoker, who was also a blacksmith, two carpenters, a cook, and eight able seamen. Of these every one of the officers was a man of experience and ability. Dr. Sutherland, the surgeon, was particularly a valuable man, having been engaged in the previous Arctic expedition under Mr. Penny, and being versed in the sciences a knowledge of which would be called into play in the Arctic regions.

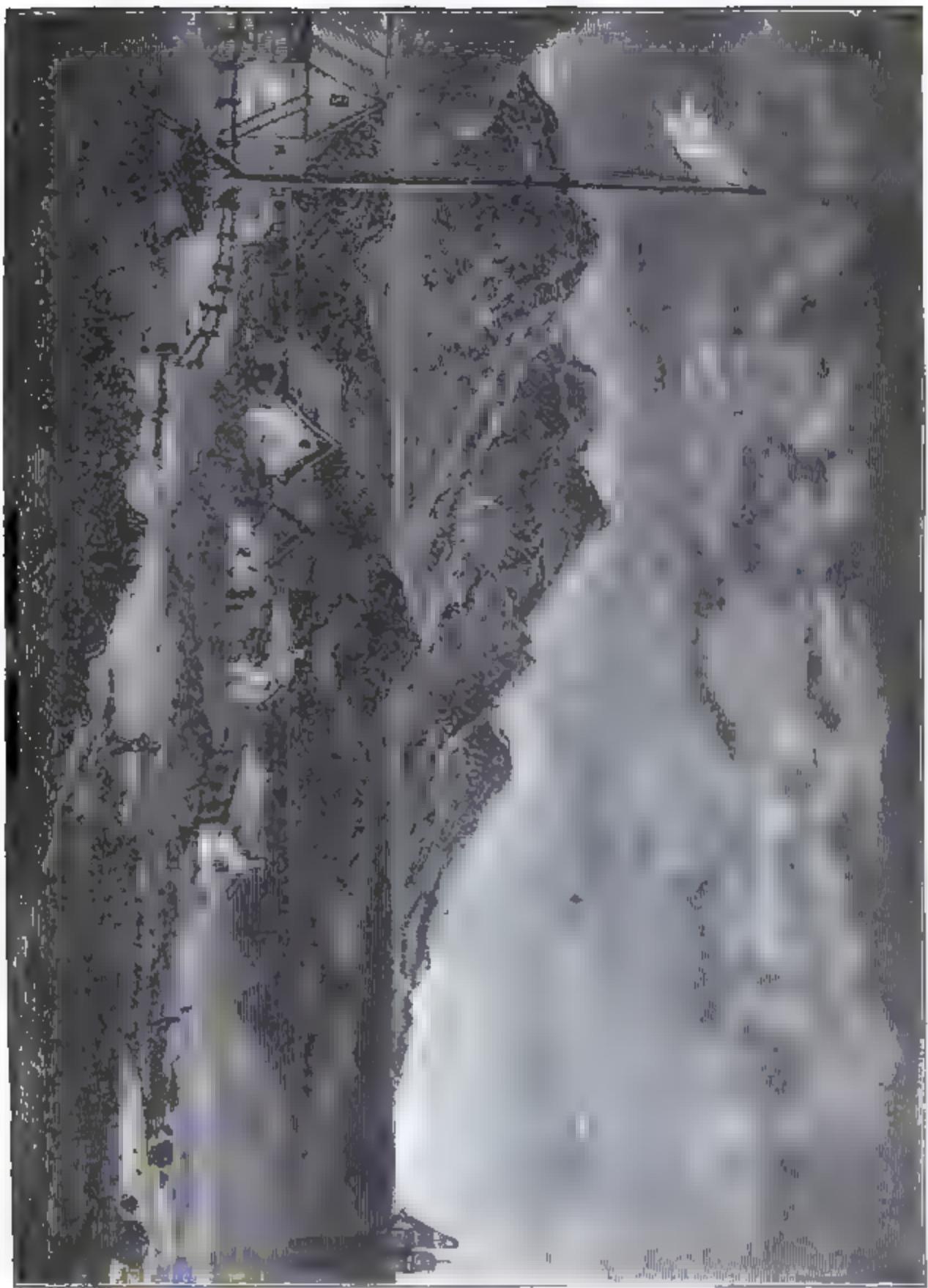
The accommodations of the Isabel were very scanty. "My cabin," says Capt. Inglefield, "was not more than six feet square, having a skylight at the top of a kind of trunk, which passed through a storeroom, built on the middle of the quarter deck. My *bunk*, or sleeping berth, was on the starboard side, four feet above the deck, and could only be approached through an aperture in a kind of wooden screen; and certain convenient book-shelves and lockers were fitted in all the angles and corners, which none but those accustomed to a seafaring life could have so ingeniously appropriated. A table two feet by two and a half, was fixed against the bulkhead which separated the 'doctor's cabin' from the captain's 'stateroom'; the former something smaller than the latter, the bunk the same size, but arranged as the sleeping berths of the doctor and Mr. Manson, one of the ice-masters. The engineer's cabin, and Mr. Abernethy's (the other ice-master), occupied positions on either side of the engine-room hatch, so that when steam was up, they enjoyed a temperature of 100° Fahrenheit."

The boiler and engine were as conveniently placed as possible. It was impossible, however, on so small a ship so to arrange the binnacle, that the compass should not be disturbed by the presence of so much

metal. Indeed, the writer is disposed to attribute the discrepancies in Commander Inglefield's results, as afterward determined by Dr. Kane, directly to the necessary inaccuracy of the former's instruments. Inglefield himself remarks: "Owing to the amount of iron in the vessel, the local attraction was very great. The boiler, engine, screw, its shaft and gearing, together with the iron sheathing, were all powerful agents to bewilder our magnetic instruments." It will be thus seen that Dr. Kane's conclusions (they will be given in a subsequent chapter), however arbitrary they may seem, were in reality reasonable, and based upon facts which sufficiently explain the discrepancies of Capt. Inglefield.

A meeting with several English sails, and a severe and lasting gale encountered off Cape Farewell, were the principal events of importance occurring during the voyage to the first stopping place on the Greenland coast. On the 7th of August, as the vessel was keeping in toward some islands on account of the heaviness of the sea, some natives were observed coming off in their light kayaks. It was soon understood that the vessel was off Fiskernæs, a Danish settlement; and Capt. Inglefield was soon able to verify his position from his instruments. Having taken the Esquimaux and their canoes on board, one of them, seemingly more intelligent than the others, proposed to take the ship into an anchorage, and, thinking it prudent to stop for the night, Capt. Inglefield yielded to his inclination to see the settlement, and proceeded to land in the little harbor. So very small was the bay of Fiskernæs, however, that the ship grated on a rock in passing, and demolished her rudder. This misfortune was repaired in a short time, and after righting the ship up preparatory to her coming battle with the ice, Inglefield landed to wait on the Danish Governor, Mr. Lazzen. Here the greatest hospitality was shown him, and although neither the governor nor his secretary could speak anything except Danish, some information was gathered of the modes of life in these regions. Among other things they found that for some reason sledging was not practiced in this bay, but the travel and traffic were performed wholly in the water by means of the kayaks, and "oomiaks" or woman-boats. The firewood, consisting of willows, half an inch in diameter, and scanty at that, was gathered in these

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oomiaks. The principal export seemed to be codfish, of which a ship-load had been sent away to Denmark only a few days previous.

Curious to observe the method of worship in this out-of-the-way place, Inglefield obeyed the summons of a little bell in the neighborhood, and took his place in the village church to watch the worshipers as they flocked in.

"Softly, but rapidly, the little meeting-house filled, and then the door closed, and an Esquimaux with the most forbidding exterior of any I had seen, slowly rose, and with much solemnity gave out a hymn, and in a few moments the melodious harmony of many well-tuned voices broke forth. I was delighted with the strain, for though not a word was intelligible to me, I could nevertheless feel that each person was lifting his heart to his Maker, and I unconsciously joined in the harmony with words which, having been learnt in childhood, now rushed into my mind, and bade me mingle them with the hallelujahs of these poor semi-savages.

* * * * * A sermon followed, and there burst from the preacher's lips a flow of elocution that I have seldom heard equaled; without gesticulation he warmed to his subject till the large drops of perspiration fell on the sacred volume, and his tone and emphasis proved that he was gifted with eloquence of no ordinary nature." After exchanging courtesies with the authorities, by giving and receiving several dinners, the party bade a final adieu to the little harbor of Fiskernæs and steamed away to the north. Capt. Inglefield intended to touch at Holsteinborg, in order to take on, if possible, one Adam Beck, a Dane, who had become responsible for a report of Franklin's murder. Inglefield desired to make him prove his statements by actually visiting the scene of the alleged tragedy. A gale, however, drove the vessel by Holsteinborg with such force that the town could not be made, and so the project referred to above had to be abandoned.

It was now resolved to push for Godhaven on Disco Island for the purpose of securing dogs and an interpreter. On reaching this port it was found that Sir Edward Belcher, who had preceded Inglefield, had taken all the dogs there were to spare. The governor, however, gave Capt. Inglefield a letter to the authorities at Upernivik, directing that

his wants should be supplied there. Finding here the mail bags of Sir Edward Belcher's squadron, they gladly added their letters to his dispatches, and proceeded to Upernivik. Landing here on the 16th of August, they were not long in procuring the things which they needed.

"A description of this settlement," says Inglefield, "would be quite superfluous, for one of these Greenland villages is so exactly the counterpart of another, that any one account of their huts and houses would be equally suitable to all; two or three wooden houses for the settlers, and a few mud huts for the Esquimaux, are the general features of these places."

A stiff southerly breeze soon brought them in sight of the entrance to Melville Bay. It was now forty-one days since they left Peterhead, and they had reached this point only a few days later than the expedition of the previous year, with apparently a better season, unencumbered with a consort, and without orders. The Devil's Thumb and Crimson Cliff were successively passed, a sharp lookout being kept in the meantime for vestiges of wrecks and traces of human life. A wedge of a ship's mast, a cask, a cork, and some staves were picked up, and at the time seemed worthy of notice with reference to the missing squadron; but, as was afterward found, the disasters of the whalers in Melville Bay accounted for the presence and condition of these articles.

After discovering and naming Northumberland Island and Murchison Channel, and accurately fixing Hakluyt Islands, discovered but wrongly located by Baffin many years before, steam and sail were put on, and the vessel sped away to the northward, and Smith's Strait and Sound were reached. Here many points of interest were discovered and named. The western coast showed at some distance back a high range of mountains, which were called after His Royal Highness the Prince of Wales; and those terminating in the most northern point visible, received their name from the English Queen, Victoria Head.

The bay intervening between that and Cape Albert, was named after the Princess Marie, then Duchess of Hamilton. Other capes on the west shore were called after the Earl of Camperdown, Col. Sabine, and Miss Cracroft, a niece of Sir John Franklin.

On the eastern land, the furthest northern point observed was called after his Danish Majesty, King Frederick VII., being the most northern point of his dominions. The water nearest this point was called after Lady Franklin, Franklin Bay, and other capes, bays, gulfs, and mountains of less importance were designated after distinguished English dignitaries. As has been seen, Inglefield's locations, especially his representation of the trend of Smith's Strait, were faulty, but the tracing of the configuration was mainly correct, and with the new latitude and longitude afterward given, the points noted by him did not receive new names.

A violent gale rising soon after Victoria Head was discovered, prevented any further progress to the north, and a return to Jones Sound was now contemplated. The highest latitude reached by the Isabella was, according to Inglefield's reckoning, $78^{\circ} 30'$, being farther north than any vessel had yet attained in this Sound. As Kane afterward found that Inglefield had made the coasts of the strait trend too much to the north, it is probable that the latitude reached at this time was less than reported by him.

The ship was now directed along the north coast of Jones Sound, and Inglis Peak and Cape Maxwell were successively noticed, and named from English personages. After attaining a western longitude of $84^{\circ} 10'$, the ship scudded before a gale over to the south shore, and the party once more proceeded eastward, surveying and charting the coast as they went.

After reaching the eastern extremity of Jones Sound and nearly suffering shipwreck on Cape Parker, it was necessary to decide what should be their next step; and after deliberation, it was determined to risk the chance of being caught by freezing up, and of spending the winter in the ice, for the benefit that might be conferred on the government service, by carrying the surplus stores of provisions and coal to the squadron of Sir Edward Belcher, whose provision-ship, the North Star, was known to be in the vicinity of Beechey Island. In this case Sir Edward might be benefited by Inglefield's discoveries, and on the other hand, the latter could carry back to England, which could probably be

reached before winter, the latest intelligence of the movements of the squadron, and of their chances of success.

Upon reaching Beechey Island, it was found that Sir Edward and Capt. Kellett had sailed from that place with their steam-tenders about three weeks previously, the former up Wellington Channel and the latter to Melville Island; nothing since had been heard of either of them; and it was supposed that Sir Edward had gone away into open water beyond Parry Strait. The officers of the North Star could not be induced to accept any considerable amount of the stores offered by Inglefield, although the fact that he was about to return to England made it possible for him to part with the most he had on board.

Here they showed Inglefield the three graves of Franklin's men, which had been discovered by Penny and DeHaven two years previous, and told him of the bear which was said to keep a continuous vigil over one of the graves, sitting upon it every night.

The mail bags being all prepared, and the kind farewells said, the Isabella prepared to begin her homeward journey. It was at first intended to land at Holsteinberg, but Whalefish Islands proving a more convenient point, a landing was effected here, and the ship refitted for the homeward journey. After a rest of several days, during which time a reception and ball, given by the Danish Crown, were enjoyed, the party set out for home, where they landed in November, just four months from the time of starting.

Upon arriving in England Capt. Inglefield published an account of his adventures, and received the approbation of many public men. Although, through causes over which he had no control, his results were, many of them, inaccurate, his voyage was still a valuable service to the cause of geographical science, and deserves due mention in our list.

CHAPTER LIV.

BIOGRAPHY OF KANE—EARLY QUALITIES—FORMAL EDUCATION—IN WRETCHED HEALTH—DECIDES UPON A LIFE OF CELIBACY—HIS LOVE-LIFE—CRITICISMS.

It is the misfortune of some men to outlive their reputations, at least so far as their noble, worthy features are concerned. On the other hand, it has often been observed that real worthiness of character, and even genius, have not received full recognition nor due homage until the ear of the possessor "has grown too dull to hear." Fortunate is the man who, like the subject of our sketch, listens in life to the praise of his own heroic and virtuous deeds, and dies with affectionate and honorable tributes still offered him on every hand. Admiration for so distinguished an American, and a knowledge of his popularity and thorough appreciation in every part of America, must be the excuse (though none were needed) for giving his biography so large a place in this series of narratives.

ELISHA KENT KANE was born on the 3d of February, 1820, on Walnut St., Philadelphia. In respect to nationality he was descended from four distinct ancestral stocks. He numbered as his progenitors the Grays, of English, the Van Rensselärs, of Low Dutch, the Leipers, of Scotch, and the Kanes, of Irish extraction. His immediate ancestors were John K. Kane of Philadelphia, and a daughter of Thomas Leiper, all parties being prominent and well-known in the politics and public events of the days in which they lived.

As a child, as a youth, and as a man, Kane exhibited striking qualities. His muscular and nervous characteristics were such as to fit him for all manner of athletic exercises, and in these he especially delighted to engage. His freedom and independence of spirit, with his intense aversion to arbitrary authority, gave him, in the estimation of prim-



DR. E. R. KANE.

itive people, the character of a "bad boy," though he really had none of the qualities by virtue of which he should have merited this title. There was nothing of the hypocrite in his nature, and he scorned to resort to those little lying subterfuges which "goodish" boys are apt to employ in order to shield themselves from the results of bad behavior. His frank and open character surprised the good people of his neighborhood and acquaintance, who did not interpret him as they grew to do afterward; and who, not understanding him at all, chose to ascribe to him those qualities which many boys possess. Many incidents of his early life well illustrate his manly disinterestedness and generosity. Especially did he establish himself as the guardian and protector of his younger brothers. One day, when about nine years of age, being at school with his little brother much younger, the latter was about to suffer a whipping for some slight offense, when Elisha sprang up, exclaiming: "Whip me, don't whip him, he's so little!" The teacher, thinking that this was another exhibition of the boy's rebellious spirit, said, "I'll whip you too, sir." The struggle which followed showed young Kane's notions of justice, although he left the room with marks that required explanation.

He was of that wiry, nervous physique which enables people to do and endure in a manner which surprises not only every one else, but oftentimes themselves, also. Commonplace feats he was never satisfied to attempt. *He* must undertake that which was difficult, daring, and in his earlier life, many times what was reckless and useless. It was just this go-ahead, energetic spirit which enabled him in after years to walk over difficulty, and accomplish his undertakings, frequently in the midst of untold peril, and in a condition of physical weakness amounting almost to prostration. Like many other men who have risen to eminence, he did not, in his earliest youth, show a taste for learning, and certainly not a fondness for lessons set by teachers, but having chosen to follow a given course of action, convinced of its reasonableness or necessity, no dislikes, or difficulties, or importunities sufficed to shake him from his purpose.

His father, afterward Judge Kane, was a shrewd lawyer, literateur,

and connoisseur in science, and seeing, with his keen penetration, that here were occult possibilities, wisely let him choose his course for himself in regard to his formal education. He had intended his son for Yale College, and took him to New Haven for entrance, but it was here soon discovered that he was already smitten with the heart disease which hung about him all his life. The University of Virginia, in presenting the plan of elective studies, gave more freedom to a youth of poor health, and here, for a time, he prosecuted his studies. There was nothing peculiar about young Kane's college course except that he manifested a great delight in the concrete realization of what he got in the abstract from books. Geology, chemistry, botany, must all receive body and meaning to him by actual examinations on the rocks, in the woods, or in the laboratory. Thus, though he did not take a degree, his knowledge of all the subjects which he investigated was marvelously complete and thorough. His great command of language, his happy choice of words, and his wonderful knowledge of the terminology of the sciences, are well seen in the descriptions which he has written of his voyages to the Polar regions.

Although in wretched health, and without prospect of any change for the better, it became necessary for Kane to choose a profession; such a temperament, and such activity of mind, could not be satisfied without some definite aim. His studies in chemistry, and his thorough insight into the methods of scientific investigation, made his subsequent choice of the study of medicine a wise one, and at the age of twenty-two he graduated in that profession at the head of his class, and with a thesis which gave him great celebrity and made him unquestioned authority on the subject treated.

He entered a hospital as senior officer soon after graduation, but it was seen that his health demanded a change. He therefore became a candidate for the position of assistant surgeon of the United States navy. Having received this appointment, his life thereafter was, to a great extent, a life of travel. With the questions how this suited him, and to what results some other manner of life would have led, we have nothing to do. We can only record here that, placed as he was, he

made the best of every circumstance, and became the polished scientist and brilliant writer that his published works show him to have been. Mexico, every part of Europe, many parts of Asia and Africa, most of the important islands of both oceans, and, as we have seen, the extremity of America, became the scenes of his observation, and their interesting features received successively the attention of his brilliant and well-balanced mind. "Some persons," says Pres. Fairchild, in his Moral Philosophy, "without physical health, or foundation for it, *live* because they deem it to be their duty." We are aware of not having quoted his words exactly, but this idea of the predominance of the soul over the body, of the will over corporal weakness, was embodied truly in Kane. He rose from a sick bed to his adventures many times when rising seemed indeed a resurrection.

It is impossible to go into the details of his eventful life up to the time of those events with which this volume has particularly to do. It remains, therefore, to mention briefly some matters connected with his private life, before continuing the narrative from which this biography is an incidental, though necessary digression.

Kane's great physical weakness had determined him in early manhood to lead a life of celibacy. It is said that as he was one day going the rounds of the poor-house hospital in his junior service as physician to that institution, he came across a diminutive, squalid pauper, who had married rather a comely woman in the house. The senior physician, who was with him at the time, asked him what he presumed must be the feelings of that woman when she looked upon this disgusting specimen, and reflected that he was her lord and master. To which Kane very seriously replied: "It is to save some lady just such thoughts as those, that I have determined never to marry." In spite of this determination, however, and in spite of his physical infirmities, he proved susceptible in after years to the charms of the fair sex. In the latter part of 1852 Kane became acquainted with the celebrated Margaret Fox, whose name has long been familiar in connection with the "spiritual manifestations" which were such a source of wonder and scientific comment at the time. Although she was but a very young girl at the time

he first met her, he fell in love with her at first sight, and resolved to win and marry her. The remainder of his life was crowded full of affection and brotherly tenderness. Probably a more devoted couple never became engaged than these two, though circumstances were against the unalloyed and unbroken enjoyment of each other's society.

The necessity compelling the Doctor's continued absence as well as the precarious condition of his health, prevented their marriage for many years; but this separation resulted in a rich legacy of correspondence which indicates more clearly than any other circumstance could do, the sincere, pure, noble character of the affection of each toward the other. They were at last married a short time before his death, but the affair was so quietly conducted, that many for a time doubted its reality, and thus placed the unhappy widow in a most undesirable light before the world. It was partly for the purpose of vindicating her own purity and that of her sainted dead that she afterward allowed his correspondence to be published. His letters reveal a depth and warmth and steadfastness of affection, which is rarely if ever excelled. No aspect of a man's life so thoroughly reveals his character as the relation which he holds to the object of his affections, and for the same reason, in no way does the public come so close to a man's inner life as in the correspondence growing out of such relation. Thus if there had ever been any doubt of the sincerity and purity of Dr. Kane, or her whom he honored with the best love of his life, it surely was dispelled upon presenting to the public eye the correspondence of his private life.

Few distinguished persons escape entirely the attacks of calumniators, and we find that our hero was no exception. In his voyage to the Arctic regions, certain difficulties in government of the crew arose, the particulars of which will appear in their proper place. We refer to them here for the purpose of showing in what way the charges of injustice brought against him, as the commanding officer, had been refuted. His course on one of the occasions referred to was strongly condemned after his return by certain persons, who, not knowing the circumstances, and being natural and chronic croakers, felt called upon to express a gratuitous opinion upon the subject. A letter from Wm. Morton, one of the

crew, and a penetrating, sagacious man, fully vindicates the action of the Doctor in each of the difficulties which arose. Mutinies were not totally unlooked for in such a time and under such circumstances as an Arctic famine suggests; and if measures which seemed extreme were resorted to, it seems that the Doctor should receive praise for exercising promptness and bravery, instead of pursuing a course which would have resulted in the disaffection of the whole party. His fame and name are too thoroughly established to need exculpation now. The circumstances of his last days and of his death may be best given after the narration of the adventures whose daring and danger have chiefly given him celebrity.



CHAPTER LV.

THEORY OF KANE — THE POLE OF GREATEST COLD — HIS APPOINTMENT AND INSTRUCTIONS — HIS PLAN — IN MELVILLE BAY — SMITH'S SOUND — GREAT PERIL — EXTREME LATITUDE — THE ADVANCE AT ANCHOR.

To resume the broken thread. Upon the return of the first Grinnell Expedition, the adventures of the voyage were fully set forth in a large volume by Dr. Kane, the observer and historian of the party. He, himself, meanwhile, had acquired opinions of his own upon the subject of Franklin's discovery, and the existence of an open Polar Sea. This opinion was merely a confirmation of his previous judgment, although hitherto unannounced. The extensiveness of his previous researches being well known, he was invited upon his return, to deliver a lecture before the American Geographical Society, announcing his views and the grounds for them. He referred in his lecture to the fact now generally known, that the pole of maximum cold is not identical with the North Pole. He showed that there are two poles of extreme cold, one for each hemisphere,—one in Asia and the other in America; and that each is on the 80th parallel. He further observed that the mean temperature of the American Pole is several degrees lower than that of the Asiatic Pole—being $3\frac{1}{2}$ °.

Extended thought and observation had led him to believe that about this pole was an *annulus*, as it were, or ring of land, of comparatively mild temperature, surrounding an open polar sea, which presumably covered the northern terminus of the earth's axis. This opinion, shared also by other eminent men, was founded upon several significant facts, among which was that just mentioned, of the poles of maximum cold, 600 miles south of the North Pole. Again, to the north of the furthest point of penetration had been seen abundant "frost smoke," always indicative of

a milder climate, and highly suggestive of open water. Besides this, it had been remarked both by Lieut. De Haven and many others that, as the North Pole was approached, the evidences of animal life increased. This, again, suggested vegetable life as the ultimate means of subsistence. Certain facts regarding the currents and winds as observed by Lieut. DeHaven, were pertinent to the subject in hand. He announced further as his opinion that Franklin had sought and found this supposed open polar sea, and that, if found dead or alive, it would probably be upon the limits of this hitherto undiscovered water.

Whether the views of Kane upon these subjects were coincided with or not, he was seen by all who heard and knew him to be a person eminently fitted to conduct an expedition to the Arctic regions, whether for the purpose of finding Sir John Franklin or for purposes of scientific investigation. He possessed skill, bravery, experience, and great scientific knowledge, all of which were qualities essential in the trying scenes implied in an Arctic voyage.

Accordingly, in December, 1852, Dr. Kane received the following formal message from the Secretary of the Navy:

“ Nov. 27, 1852.

SIR:—Lady Franklin having urged you to undertake a search for her husband and his companions, and a vessel, the Advance, having been placed at your disposition by Mr. Grinnell, you are hereby assigned to special duty, for the purpose of conducting an overland journey from the upper waters of Baffin's Bay to the shores of the Polar seas.

“ Relying upon your zeal and discretion, the Department sends you forth upon an undertaking which will be attended with great peril and exposure. Trusting that you will be sustained by the laudable object in view, and wishing you success and a safe return to your friends, I am respectfully your obedient servant,

“ JOHN P. KENNEDY

He was also formally directed to give his “ attention to scientific inquiry;” and “to transmit to the Department when opportunities afforded, reports of his progress, and the results of the search.” To the enterprise in hand contributions were also received from Mr. George Peabody, noted for his generosity to the London poor. Various scientific institutions aided in furnishing the expedition with suitable instruments

and other articles useful for the expedition. Ten officers and men were detailed by the United States Government to accompany the party, and these, with seven others specially chosen for the occasion, completed the ship's crew. They were not under the laws which govern the United States Navy, but they had excellent rules and regulations, which were rigidly adhered to throughout all the exigencies of the journey. These were, mainly, to be in complete subordination to the officer in command or his representative; to use spirituous liquors only when dispensed by the special order of the commanding officer; and to abstain habitually from profane language.

Kane's plan had been outlined in his address before the American Geographical Society; and was based upon the theory that the northern part of Greenland probably formed part of the *annulus* which has been spoken of as theoretically surrounding the Pole. His general plan, then, was to pass up Baffin's Bay to the highest attainable point, and then pressing on toward the Pole as far as boats or sledges could carry them, examine the coast line for vestiges of the missing party. It was with reference to this plan that their simple equipment was chosen. It consisted of a quantity of rough boards to serve for housing over the vessel during the winter, a few small tents, and several carefully built sledges.

Leaving New York on the 30th of May, 1853, the ship, in eighteen days, had reached Newfoundland, where they received a team of large dogs from the governor of the province; and proceeding, without incident reached the harbor of Fiskernæs, on the coast of Greenland, July 12. Here, understanding that both the party and the dogs would require fresh meat, and knowing that a skilled hand for this service would be necessary, an Esquimaux boy of nineteen, named Hans Christian, was secured for trifling wages, and a premium of bread and meat for his mother. This boy became very useful to the party, both as caterer to the dogs, and as it came to pass, to the party also. Thus the expedition proceeded up the coast, stopping, as a matter of course, at the various ports, Prøven, Lively, and Upernivik, to procure dogs and clothing, and establish a friendly feeling among the natives and resident Danes. Going on among the dangerous fogs and shoals, Melville Bay was

reached, and preparations were made to strike out to the northward and Smith's Sound.

After entering Smith's Sound Kane deposited several caches and erected several cairns for the double purpose of supplying them with food if obliged to traverse that way again, and of guiding any who might follow on their track. Throughout all the journey up this passage the brig was in the most imminent peril. On one occasion the vessel was moored to an iceberg for the night, and was supposed to be in a position of safety, when suddenly the water about them began to be covered with pieces of ice as large as a walnut, and larger. There was barely time to put off from the berg before it fell to atoms with a crash, lashing the ocean into foam for many yards about. Thus capricious did they find the ice of Smith's Sound.

Working their way up with difficulty, they had reached, on August 19, the extreme latitude of 78° . Here an event occurred which modified effectually their whole future journey. Indications of a gale approaching induced the commander to moor the ship as securely as possible, and await the result. Three strong cables were employed in this service, and it was hoped that by thus apparently fastening, danger or disaster, at least, might be averted. The gale arose, until the second day the straining of the cables was intense. The six-inch hawser, the whale-line, and the ten-inch manila successively parted, with reports like musketry, leaving the vessel and her imperiled crew to the mercy of the wind and the floating ice. For reasons given before, and sufficiently obvious, we quote the scene in Dr. Kane's own graphic language:

"Ahead of us, farther to the north, we could see the strait still growing narrower, and the heavy ice-tables grinding up and clogging it between the shore-cliffs on one side and the ledge on the other. There was but one thing left for us: To keep in some sort the command of the helm, by going freely where we must otherwise be driven: We allowed her to scud under a reefed fore topsail; all hands waiting the enemy, as we closed, in silence.

"At seven in the morning we were close onto the piling masses. We dropped the heaviest anchor with the desperate hope of winding

the brig; but there was no withstanding the ice torrent which followed us. We had only time to fasten a spar as a buoy to the chain, and let her slip. So went our best bower.

"Down we went upon the gale again, helplessly scraping along a lee of ice seldom less than thirty feet thick; one floe measured, by a line as we tried to fasten to it, more than forty. I had seen such ice only once before, and never in such rapid motion. One upturned mass rose above our gunwale, smashing in our bulwarks, and depositing half a ton in a lump upon our decks. Our little brig bore herself, through all this wild adventure, as if she had a charmed life.

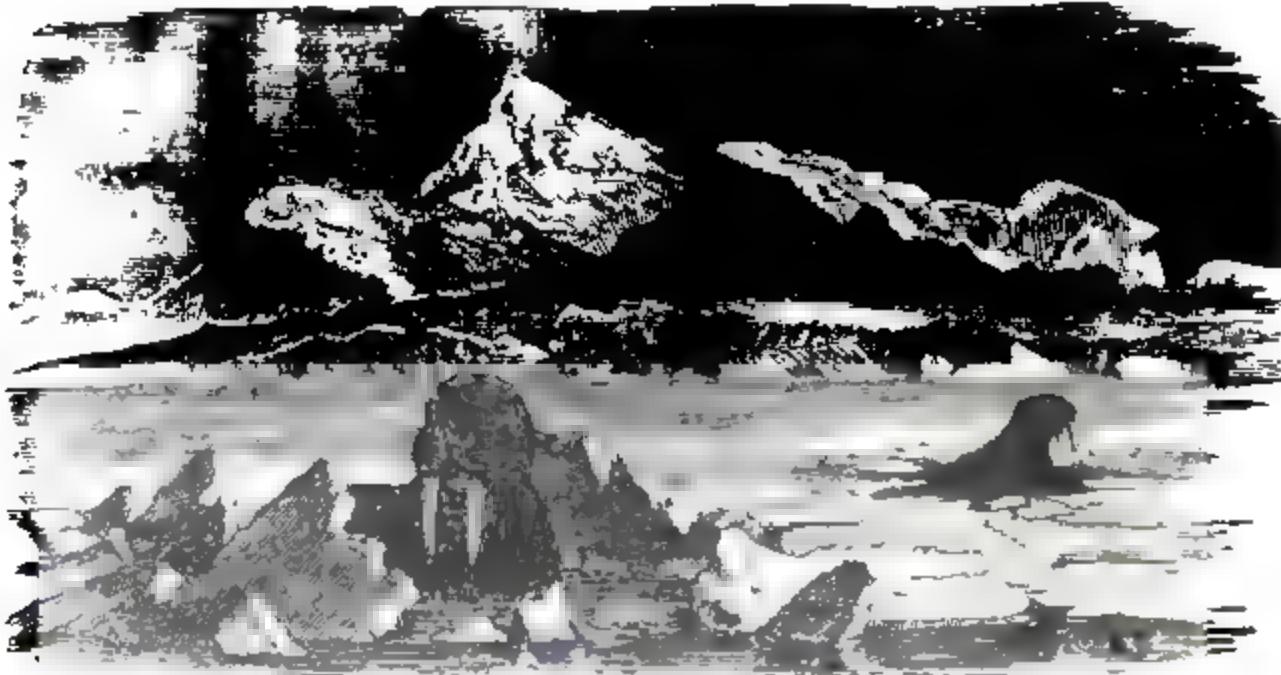
"But a new enemy came in sight. Directly in our way, just beyond the line of floe-ice against which we were alternately sliding and thumping, was a group of huge bergs. We had no power to avoid them; the only question was whether we were to be dashed in pieces against them, or whether they might not offer us some protection from the storm. But as we neared them we perceived that they were at some distance from the floe's edge, and separated from it by an interval of floe water. Our hopes rose, and the gale drove us toward the passage and into it; and we were ready to exult, when, from some unexplained cause, probably from an eddy of the wind against the lofty ice walls, we lost our headway. Almost at the same moment we saw that the bergs were not at rest; that, with a momentum of their own, they were bearing down upon the other ice, and that we were fated to be crushed between the two.

"Just then a broad sconcepiece, or low, water-washed berg, came driving up from the southward. The thought flashed upon me of one of our escapes in Melville Bay; and as the sconce moved rapidly alongside of us, McGary managed to plant an anchor on its slope, and hold onto it by a whale line. It was an anxious moment. Our noble tow-horse, whiter than the pale horse that seemed to be pursuing us, hauled us bravely on, the spray dashing over his windward flanks, and his forehead tearing up the lesser ice as if in scorn. The bergs encroached upon us as we advanced; our channel narrowed to a width of perhaps forty feet; we braced the yards to clear the impending ice wall. * * *

We passed clear, but it was a close shave—so close that our port water boat would have been crushed had we not taken it from the davits—and found ourselves under the lee of a berg in a comparatively open lead. Never did heart-tried men acknowledge with more gratitude their merciful deliverance from a wretched death."

Thus the narrative continues; a long and thrilling account of narrow escapes from being crushed in the mountains of ice. Kane goes on:

"During the whole of the scenes I have been describing, I could not help being struck by the composed and manly demeanor of my comrades. The turmoil of ice under a heavy sea often conveys the impression of dan-



SMITH'S SOUND.

ger when the reality is absent; but in this fearful passage, the parting of our hawsers, the loss of our anchors, the abrupt crushing of our stoven bulwarks, and the actual deposit of ice upon our decks, would have tried the nerves of the most experienced ice man."

It must not be supposed that during all this terrific scene no efforts were put forth by the men to anchor the brig and avert the hazard of the perilous ice-strait. Repeated efforts were made to grapple the passing ice-blocks, and in such efforts four of the crew became separated from the brig and had to be rescued in a boat after the gale subsided. Mr. Bon-sall, one of the ice-masters, avoided being crushed by a perilous leap to a floating fragment, and like intrepidity was exhibited on all hands.

The gallant little brig, however, was not yet out of danger. The immense accumulations of ice about her, borne on to the north by the rising gale, began, to the horror of the crew, to force her square over the berg in whose lee she had landed. As she rose slowly on its rugged surface, impelled by the tremendous momentum of the moving floe behind, the suspense as to the result became oppressive. Sometimes a shock more sudden and severe than the rest would turn her on her side, and threaten to precipitate crew and all into the seething chaos of ice and water. As she descended its windward slope and quietly took her place among the broken rubbish, the excitement of the crew was marked by silence rather than exclamations; they were too thankful to speak.

It was not till the 22d of August that this terrible storm abated sufficiently to end the period of inaction consequent upon the adventures just described. As soon as possible, however, all hands took hold of the tow-line and "harnessed like mules on a canal," proceeded by "tracking" to drag the vessel toward a place of supposed safety. After proceeding in this way for some miles, a point was reached where at least temporary security could be relied on, and the commander and officers were enabled to look about them and plan for the future.

They had now attained a latitude of nearly 79° , being further north than any of their predecessors except Parry, in his tramp on foot on the island of Spitzbergen. This element of success at least, was theirs.

The bold commander was hardly satisfied to pass the winter without first attaining a more northern point, but young ice was forming; snow-storms were becoming frequent; the growing severity of the weather, added to what they had already passed through, was beginning to tell in its depressing effect upon officers and crew. A generous regard for the feelings and opinions of his officers led Kane to consult with them upon the question of their future action. All, with one exception, were of opinion that all attempts to secure a more northern position were unwise and useless. Dr. Kane, however, urged upon them the necessity of making a point from which it would be convenient at least to dispatch sledging parties, and proposed to proceed by warping, until such a place could be arrived at. To this all agreed, and entered heartily into the

work of conveying the vessel to a desirable harbor. After making a few miles by availing themselves of wind and tide and lever, a bay was reached. Here Dr. Kane determined to leave the vessel until he should explore the northern region in a boat and determine the practicability of further advance with their well-tried brig. Fitting out a boat with the suggestive name of the *Forlorn Hope*, the commander, with seven trusty and able men, started on the 29th on their tour of investigation.



ARCTIC AQUATICS.

CHAPTER LVI.

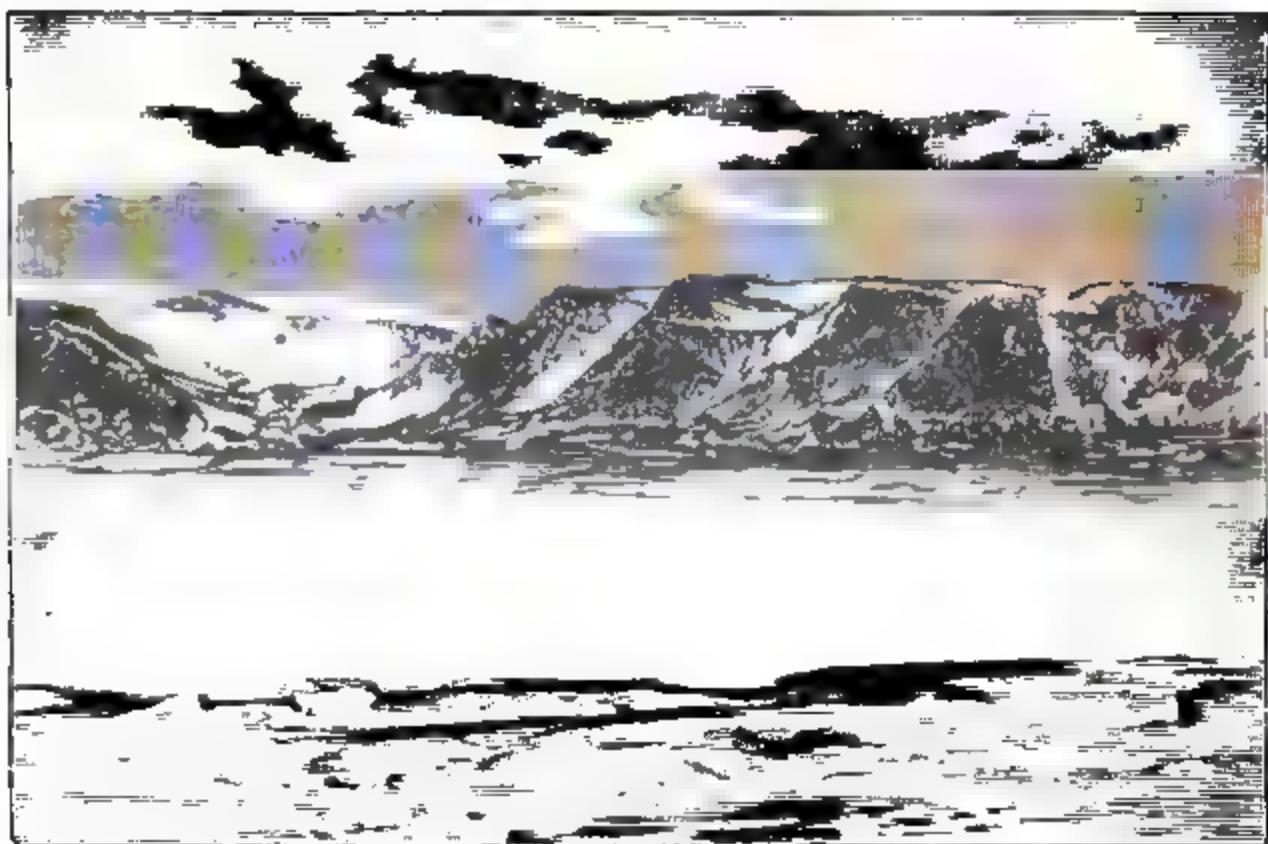
KANE LEADS A BOAT AND SLEDGE EXPEDITION — A GREENLAND RIVER — THE EIGHTIETH PARALLEL — “THE SAME ICE SURROUNDS HER STILL” — PREPARATIONS FOR WINTER — A CACHE PARTY — ACCIDENTS AT THE BRIG — DIFFICULTIES OF ARCTIC OBSERVATION — HANS, THE HUNTER — RETURN OF A WARM FRIEND — A PRELIMINARY SURVEY — AN UNEXPECTED RETURN — KANE SAVES THE PARTY.

Passing on through the narrow strait opening in front of them, the little party was able by breaking the young ice which kept constantly forming, to make about seven miles on the first day. Cold and wet from the necessities of this doubtful navigation, night was eagerly welcomed. Twenty-four hours' absence from the ship brought them to the end of their boating. The ice-pack had closed with the belt, and was thus on one side and in front of them, while on the other side was the ice-girt shore. Advance with the boat was impossible. The carefully packed sledge was therefore taken out and set up, and the boat snugly stowed away in a convenient gorge. The sledge was now laden with a few necessaries, and the march again proceeded. Interesting notes were taken of the topography and glacial appearance of the rugged region over which their path lay, and many an amusing and exciting incident served to relieve the monotony of the journey. Its difficulty may be conceived from the fact that five days' absence only found them forty miles from the brig. The tortuous course which it was necessary to pursue with the sledge was a great drawback to the commander in his haste to make latitude, and he determined to leave the sledge and proceed on foot. The undesirable feature of this method was, that not enough food could be carried. The average weight of the men's burden was thirty-five pounds, including a quantity of pemmican and one buffalo

robe apiece, and even this was found to weigh them down. It was found, however, that greater progress could be made in this way than with the whole outfit, and one day they succeeded in making twenty-four miles.

A river was at last reached which emptied into a large bay, and was presumed by Kane to be the largest river of North Greenland.

"Here," says Kane, "protected from the frost by the infiltration of the melted snows, and fostered by the reverberations of solar heat from the rocks, we met a flower-growth, which, though drearily Arctic in its



GLACIER SEEN BY KANE.

type, was rich in variety and coloring. Amid *festuca* and other tufted grasses twinkled the purple *lychnis* and the white star of the chickweed, and not without its pleasing associations, I recognized a single *hesperis*, the Arctic representative of the wall-flowers of home."

After reaching a rocky headland which overlooked a wide expanse extending far beyond the 80th parallel, this was made the final point of reconnoissance, and the party proceeded back to the brig. Kane announced to the waiting men that he had discovered no spot better suited for winter quarters than the bay in which the brig was now anchored,

and gave instructions to tow her between two small islands. Here, then, she was anchored amidst the ice; destined to be her resting place for a long time indeed, for "the same ice surrounds her still."

The little party in Rensselaer Harbor, as their retreat was called, now found winter rapidly approaching. The old ice was soon so firmly cemented in the bay by that which was newly formed, that it would bear sledging parties which coasted out around the brig from time to time. Much was to be done, and done at once; for the sun could not be depended on much longer. The mountain range to the south would obscure him two weeks before his regular time for disappearance. The hold was to be unloaded of its supplies, which were to be placed in the storehouse upon Butler's Island. This was done by means of loaded boats, through a channel which must be recut every morning. A comfortable kennel must be erected for the canine rabble, which, however, would not occupy it. Wild as they were, they preferred to sleep on the snow in calling distance of the men. A deck-housing had to be planned and built, care being taken to make as warm as possible their winter residence. An observatory was constructed of stone, which the men hauled across the ice on sledges. There remained, moreover, to plan and establish provision depots for the convenience and safety of exploring parties as they should now and then be sent into the interior. The food to be deposited in these places was chiefly pemmican, and as little or no game had been seen in Smith's Sound, it was necessary to freshen their salt provisions, which, in their isolated condition and tendency to scorbutic disease, it would not do to use. Accordingly, a fresh water lake having been found in the interior of one of the islands, poles of the meat suspended by strings were brought successively to receive the freshening baptism. The instruments, also, must be placed and adjusted. The magnetic observatory was duly equipped with its magnetometer and dip instruments. The transit and telescope were adjusted in the observatory proper. The tide gauge was upon the brig itself, and the meteorological observatory was placed in the open field, duly protected. So sensitive were some of the thermometers, that when they indicated 40° or 50° below zero, the mere approach of an observer would cause a change.

One of them could be read to the tenth of a degree. So the preparations for the winter's observations went on, as the sun in his daily circuit sank lower and lower.

In the meantime, a depot party had been sent out, with several hundred pounds of pemmican to deposit in three places. This party departed on the 20th of September, and did not return for twenty-eight days. During their absence several curious and nearly dangerous incidents occurred to the little party remaining at the brig. For some time the hold had been seriously troubled with rats. An attempt to burn them out with a delectable compound of brimstone, arsenic and burnt leather had failed, and it was determined to asphyxiate them with carbonic acid gas. A quantity of charcoal was burned below, and the hatches securely closed. The cook with unfortunate temerity stole below to attend to cuisine duties, and was hauled forth from the deadly element more dead than alive. About the same time, Dr. Kane, suspecting that something below was on fire, went down, and he, too, was forcibly extricated from death by suffocation. The fire proved to be on the deck, and was only quenched with the greatest difficulty. Several days after a dog was observed to have symptoms of hydrophobia, and was quickly dispatched by a rifle. This circumstance suggested a horrible danger not before thought of.

On the 18th of October the exploring party returned and gave a full report of their proceedings. They had with great pains, and often with great difficulty, executed the commission upon which they had been sent. Their chief care was to leave the provisions in suitable places, and to secure them from the invasions of the polar bear, which is very penetrating and sagacious, and generally destroys what stores of this kind he does not consume. In spite of their care in this regard, they found on returning along their track that one of their caches was almost completely demolished. They had been wet to the skin, and exposed to the greatest peril from cracking glaciers, and from the extreme cold.

The sun at last disappeared, and the intense cold of an Arctic winter came on. Some of the problems and difficulties presenting themselves in this frigid solitude, are thus shadowed by Kane: "Fireside astronomers

SCHEMATIC DRAWING OF THE



can hardly realize the difficulties in the way of observations at such low temperatures. The mere burning of the hand from frost is obviated by covering the metal with chamois-skin, but the breath and even the warmth of the face and body, cover the sextant arc and glasses with a fine hoar frost. Though I had much clear weather, I barely succeeded by magnifiers in reading the verniers. It is, moreover, an unusual feat to measure a base-line in the snow at fifty degrees below freezing.

"The great difficulty is to keep up a cheery tone among the men. Poor Hans has been sorely homesick. Three days ago he bundled up his clothes and took his rifle to bid us all good-bye. It turns out that besides his mother there is another one of the softer sex at Fiskernæs that the boy's heart is dreaming of. He looked as wretched as any lover of a milder clime. I hope I have treated his nostalgia successfully, by giving him first a dose of salts, and secondly, promotion. He now has all the dignity of henchman. He harnesses my dogs, builds my traps, and walks with me on my ice-tramps; and, except hunting, is excused from all other duty. He is really attached to me, and as happy as a fat man ought to be."

The reader would not care for the details of this somewhat monotonous night and winter. The most striking feature was the unexampled cold which was experienced about the 1st of February. The spirit thermometers indicated a temperature of 67° below zero, or 99° below the freezing point. "Spirit of naphtha froze at -54° , and oil of sassafras at -49° . The oil of wintergreen was in a flocculent state at -56° , and solid at -63° and -65° ." Every expedient was tried that could be thought of to relieve the dreary desolateness of the scene. Checkers, chess, cards, and other games were introduced, and served for a time to enable the crew to forget their unpleasant surroundings. An Arctic newspaper was projected and successfully managed, some of the best articles being from the forecastle. The vignette of this novel journal was a picture of a ship fast in the ice, and its motto: "*In tenebris servare fidem.*"

But the longest night has an end. The sun gave promise of his coming by crimson bands shooting up from the horizon, and growing in

brightness and magnitude with each successive day. February brought them momentary glimpses of his glory, and March gave them day itself—a long needed tonic. "It was," says Kane, "like bathing in perfumed water." The ambitious leader began to prepare for an extended trip on sledges to the north and east. Of his fine stock of Newfoundland and Esquimaux dogs, only six remained; the excessive cold and the absence of light had brought on melancholia and inaction, which, without the mental stimulants with which men are wont to overcome their complaints, quickly overcame them. But a new sledge was built, suited more fully to the capabilities of that portion of the faithful pack which remained. The coming of the sun was not attended at first with an increase of temperature. Throughout March and later the thermometer indicated -40° , making travel abroad dangerous to the inexperienced in Arctic weather. But Dr. Kane felt that he had not yet accomplished his purpose, and he was anxious with that anxiety which ever characterizes the true scientist, to extend his observations. A party for preliminary search was, with some difficulty, organized and sent out. This party was to be supplemented after a time by the exploring party itself, which was to include Dr. Kane, and was intended to make important additions to the already rich results of the expedition.

The preliminary party had been absent eleven days, and preparations were nearly complete to follow it, when an event occurred which gave an unexpected color to their projected expedition.

"We were at work cheerfully sewing away at the skins of some moccasins by the blaze of our lamp, when, toward midnight, we heard the noise of steps above, and the next instant Sontag, Ohlsen and Petersen came down into the cabin. Their manner startled me even more than their unexpected appearance on board. They were swollen, haggard, and scarcely able to speak.

"Their story was a fearful one. They had left their companions in the ice, risking their own lives to bring us the news. Brooks, Baker, Wilson, and Pierce, were all lying frozen and disabled; where, they could not tell. Somewhere in among the hummocks, to the north and east. It was drifting heavily around them when they parted. Irish Tom

had staid by to feed and care for the rest, but the chances were sorely against them. It was vain to question them further. They had evidently traveled a great distance, for they were sinking with fatigue and hunger, and could hardly be rallied enough to tell the direction in which they had come."

Here, as usual, Kane's kindness, promptness, and executive ability was interposed, and saved the party. A sledge was made ready, Ohlsen placed upon it securely wrapped in furs, and an immediate departure made. The temperature was 76° degrees below freezing. For sixteen hours they struggled on to a place acknowledged by Ohlsen to be unfamiliar to him. Kane continues: "Rushing ahead of the party, and clambering over some rugged ice-piles, I came to a long level floe, which I thought might have attracted the eyes of weary men in circumstances like our own. It was a light conjecture, but it was enough to turn the scale, for there was nothing else to balance it.

"I gave orders to abandon the sledge and disperse in search of footmarks. We raised our tent; placed our pemmican in cache, except a small allowance for each man to carry on his person, and poor Ohlsen, now just able to keep his feet, was liberated from his bag." Halt was impossible, as, with the thermometer at 80° below freezing it required brisk exertion to keep from perishing. The men were ordered to spread out so as to multiply the chances of discovery, but kept nervously closing up as if in fear even of so much solitude. Several were seized with severe trembling fits, and Dr. Kane fainted twice from the effect of the exposure. Finally, after an unbroken march of twenty-one hours a tent was discovered which proved to be that of their unfortunate comrades. The welcome which greeted the rescuing party nearly overcame the stoutest heart of them all.

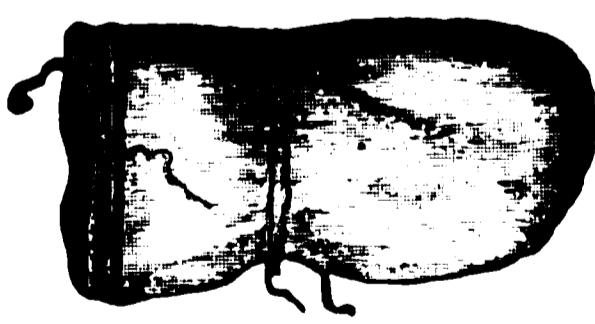
The tent, the sick, and all that could be carried, was loaded on to the sledge, and preparations made to depart for the brig. The load, when complete, weighed eleven hundred pounds.

The journey homeward was made amid the most fearful suffering that can be described. The "sleepy comfort" of freezing which had hitherto been treated as a mere sentiment by most of the men, was now real-

ized in good earnest. The strongest men came to Kane asking permission to sleep. "They were not cold now; only tired and sleepy." Kane tried the result of three-minute naps by turns, and thought the expedient upon the whole useful. The Doctor and a single man went on ahead to the tent and *cache* left the day before, in order to prepare some hot food for the rest.

"I cannot tell," says Kane, "how long it took us to make the nine miles, for we were in a strange sort of stupor, and had little apprehension of time. It was probably about four hours. We kept ourselves awake by imposing on each other a continued articulation of words. They must have been incoherent enough! I recall these hours as among the most wretched I have ever gone through."

The brig was at last reached, most of the men being in a half-delirious state, and having a confused recollection of what had taken place. In spite of the prompt and efficacious treatment by Dr. Hayes, the limbs of several of the party had to be amputated, and two sufferers died. It was four days before Dr. Kane was able once more to record passing events, and perform the other functions of his office.



DOG-SHOE.

CHAPTER LVII.

VISIT FROM ESQUIMAUX—NATIVE DISHONESTY—A JOURNEY TO HUMBOLDT GLACIER — TENNYSON'S MONUMENT — KANE'S STRENGTH FAILS—MORAL POWER OF KANE—HAYES' EXPEDITION—MORTON DISCOVERS AN ALLEGED POLAR SEA.

Within a week after the return of the unfortunate party described in our last chapter, the brig was favored by a visit from Esquimaux—the first yet met in this extreme latitude. Almost before the ship's company were aware of it, they were surrounded by a swarthy crowd conveyed thither on peculiar looking sledges drawn by handsome dogs. Picketting their teams by means of their lances, they were ready to treat with the commander. Dr. Kane singled out a burly looking fellow a head taller than himself, and made motions for him to come forward. At first only this one was allowed to come on board, but at last he was permitted to signal the rest. These were hospitably received, and a feast was spread before them. As food, however, they preferred gorging themselves on walrus-meat rather than eating the good, wheaten bread and loaf sugar which were set before them in abundance. Many things on board the ship greatly astonished and amused them—among them the coal, which presented to them a strange consistency. They were allowed to sleep in the hold, and seemed much pleased with their night's entertainment. In the morning a treaty was made between the two parties, which provided that the Esquimaux should furnish them with blubber, and rent them their dogs and sledges for proposed expeditions. Kane had heard too much of the versatility of the Esquimaux mind to be surprised when he found that the treaty was not kept. Not only did the party never return, but several articles of value about the ship and storehouse were found to be missing. Their disappearance could only be traced to the greed and dishonesty of the savages. From this time, how-

ever, they were visited by various parties of the Esquimaux, with whom they established amicable relations, and whom in the sufferings and privations of later days they came to regard as friends and fellows.

April was now about to close, and the little time allowed by the Arctic summer for safe traveling must be used to the best advantage. Accordingly, a journey to the great glacier of Humboldt to the north-east was planned by Kane, and the officers and crew were soon busy with the little details of their individual preparations. Kane himself was occupied in becoming expert in the use of the dog-whip, the only means of guidance in canine locomotion. He had now a smart team of seven dogs, four bought of the visiting Esquimaux and the remaining three of his old stock. These he was busy training every day as long as his strength would permit. He remarks that one must be able to employ both strength and exceeding dexterity, or else give up the idea of driving dogs. It is necessary to be able to hit any dog in the team in any place—ear, nose, or hoof. The efficacy of a successful hit is attested at once by a dismal howl and accelerated speed. “The Society for Preventing Cruelty to Animals,” says Kane, “would have put me in custody if they had been near enough; but, thanks to a merciless whip freely administered, I have been dashing along twelve miles in the last hour, and am back again; harness, sledge, and bones, all unbroken.”

The party chose April 27 as the occasion of starting. Two sledges, equipped with all that a varied experience in the frigid zone suggested, constituted their conveyance. Kane hoped, by the help of the provision-caches deposited along the route during the previous autumn, to be able to reach a higher point on the Greenland coast than had yet been attained. Indeed, he surmised that he might gain a point sufficiently northward to enable him to discover whether Greenland was connected with North America, and thus was, in geographical parlance, a great peninsula, or whether it was sufficiently isolated to give it the character, and justify the name of island.

Various points along the coast were successively reached and named, and great care taken to project the configuration upon carefully wrought maps. A wonderful column of green stone, standing solitary in a pic-

turesque nook, was called "Tennyson's Monument." At length a sight was gained of the Great Glacier. Here was to be seen the analogue of the river systems of America and Asia. The snows of Greenland's almost perpetual winter descend into this immense basin with all the leisurely dignity of Nature, and seeking every fiord and recess in their majestic course, fill them with minor streams, which, cropping out into the sea, furnish the icebergs, the terror of northern navigators. The bulk of this huge stream flows on, pouring out its "frozen torrent," at last into unexplored Arctic waters.

It was a source of the greatest annoyance to the party, now far from the brig, to find that the stores *en cache*, had all been destroyed by the polar bear; through no fault, however, of the officers to whom had been intrusted the service of depositing them the fall before. Substantial cairns had been erected over the provisions, consisting of stones requiring the strength of three men to put them in place. The bears, with their immense strength had pushed the stones aside, and shivered the barrels containing the pemmican and alcohol into atoms. Thus failing to replenish their exhausted stores, their progress was considerably embarrassed.

The delicate health of Dr. Kane has been referred to, in previous pages. Overcome with the great requirements of the occasion, he sank just as he was taking observations upon the ice river described above. Only the tender nursing of five of his best men availed to save his life till the brig could be reached. The narrative of Dr. Hayes, who acted as recorder during Kane's sudden and severe illness, says that he was brought on board between his men, apparently in a dying condition. His symptoms were dropsical effusion, night-sweats and delirium, and Dr. Hayes' diagnosis supposed him to be suffering from scurvy and typhoid fever combined. For several days he fluctuated between life and death; but finally rallied enough to plan once more the schedule of coming operations.

Here, again, is observed the principle referred to in the biography of Dr. Kane—the influence exercised over disease by a determined state of the mind. Two of Kane's men, physically abler and stronger than he,

and with symptoms no worse than his at first, had succumbed to death in spite of the best care and medical treatment that could possibly be given them. But the genius of Kane seemed to comprehend the fact that the safety of the party was conditioned upon his own ability to direct. He was, in fact, without being ostentatious, a *philanthropist* in a very real and practical sense. So, with a strength that seemed to be and *was* superhuman, he clung to life and rose to be again the moving spirit of his party. It may be remarked in passing, that in his medical practice Dr. Kane had strong faith in the uses of moral power in functional diseases. His own case had led him to be somewhat skeptical with regard to the offices of medicine; and he was loth to confess the *direct* action of any remedy, though, if the credulousness or superstition of any patient required it, he had abundant expedients to disguise his real opinion. For example, he judged at one time that his scurvy patients needed simply a diet of vegetables. They, however, shrank from the olive-oil and raw potatoes offered them. Whereupon he made a nauseous-looking compound from the same materials and dignified it with the name of medicine, which was swallowed with the desired effect. Their faith saved them.

Although by no means satisfied with his tour to the northeast (for he had hoped to reach the north coast of Greenland), Dr. Kane felt that his operations must now be conducted in another direction. Capt. Inglefield, an account of whose voyage appears in another chapter, had calculated inaccurately the trend of the coast on both sides of Smith's Strait. This was shown by Kane's theodolite, which indicated a disagreement with Inglefield's results of 60° angular measurement. It was thought necessary to cross Smith's Strait to the western side, locate more accurately the Cape Sabine of Capt. Inglefield, and compare the configuration of the coast to the north as laid down by him with their own reckoning at that point. Dr. Hayes was chosen for this service. He was comparatively fresh, having as yet undertaken no journey, and William Godfrey, one of the sturdiest travelers, was chosen to accompany him. It was decided to travel almost exclusively with the aid of the dogs—a wise decision, for Dr. Hayes afterward reported encountering

places which could not have been traversed at all without their valuable assistance.

The little party set out on the 20th of May, and proceeded directly across the strait (the ice being solid) to Cape Sabine. Examination disclosed the fact that a channel still to the north of Smith's Strait conveyed its waters to some point beyond, and that the broadening of this passage was not, as had been supposed, the final receptacle of the waters from the south. This channel, when more fully explored, was named Kennedy Channel.

The journey abounded in incident and thrilling experiences. Godfrey, the driver, became exhausted, and was obliged to lay up. The harness of the dogs became broken or hopelessly entangled, and Dr. Hayes was compelled to undertake part of his journey on foot. Upon his return he found that the dogs, unsed as they were, had eaten all of the harness within their reach. He himself was stricken with snow blindness, and unable to proceed. When at last they were once more able to travel, a slice from Godfrey's pantaloons repaired the broken harness, and they returned to the ship worn out and sick. They had traveled two hundred and seventy miles, and had made many valuable discoveries.

One of the most important journeys of this season was undertaken by Mr. Morton, often mentioned in Kane's narrative as a most faithful and trusty man and able voyager. His companion on this occasion was Hans, the Esquimaux, whose services proved indispensable. They left the brig on the 4th of June and proceeded at once to McGary's Island,



WM. MORTON.

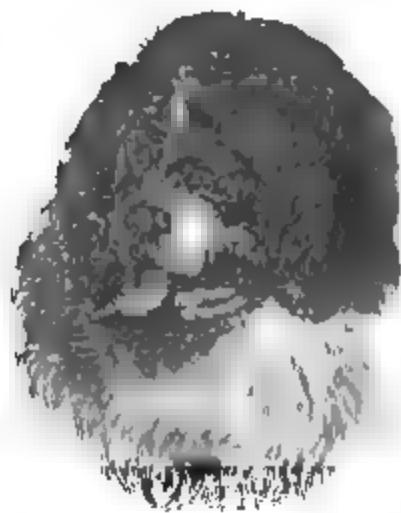
where, it will be remembered, was constructed the principal *cache* of the previous year. Here Morton separated from Mr. Bonsall, Mr. McGary, and others who had accompanied him thus far, and joined by Hans, proceeded northward on the 15th. After he had traveled a considerable distance over a solid area, the ice indicating by the cracks a thickness of seventy-two feet, he was startled by its growing weakness. It became decidedly rotten, and the snow on its surface wet and pulpy. Then the reality of the pole of maximum cold, and of a warmer climate beyond, burst upon him. It now for the first time occurred to him that a long dark band seen to the north, beyond a penetrating cape, was water. Climbing an eminence which gave him a full view of the surrounding situation, he was rejoiced at the sight of what appeared to him an open, extended ocean.

"It must have been an imposing sight, as he stood at this termination of his journey, looking out upon the great waste of waters. Not a speck of ice, to use his own words, could be seen. There, from a height of 400 feet, commanding a horizon of almost forty miles, his ears were gladdened with the novel music of dashing waters, and a surf breaking in among the rocks at his feet, stayed his further progress. The high ridges to the northeast dwindled away to low blue knobs, which blended finally with the air. Morton called the cape which baffled his labors after his commander, but I have given it the more enduring name of Cape Constitution. I do not believe there was a man among us who did not long for the means of embarking upon these bright and lovely waters."

Thus having reached an elevation of $80^{\circ} 30'$ —a latitude never before attained by navigators of Greenland seas—Morton returned homeward, to be received with warmth and gratitude by his comrades.

Once more the time for northern expeditions was drawing to a close, and the continued firmness of the ice about the brig was an occasion of serious misgivings. Could it be that they were destined to spend another winter of darkness, and hunger, and famine in that cheerless region of natural dearth? The thought was horrible, and yet no exit appeared for the good ship which nine months before had found here an icy prison.

All around as far as the eye could reach, was a frozen waste. It was true that the latest time for the ice to break had not yet appeared; but they had to remember how far north they were, and how unfavorable a season for melting ice the present one was proving itself to be. Besides, the ice had collected in great hummocks about the spot where they had warped their way in, making it apparently impossible to retreat. The speculations and inquiries of the rest indicated that they also were beginning to have anxious thoughts about how and where they should spend the coming year. It began to seem as if winter would be upon them again before the sun could thaw a path for their egress. It was with a heavy heart that the courageous commander set about solving the problem of their liberation.



OLD GRIM (KANE'S FAVORITE.)

CHAPTER LVIII.

ATTEMPTED JOURNEY TO BEECHEY ISLAND—PRELIMINARY COUNCIL
—GOOD FORTUNE — CORRECTS INGLEFIELD'S ERRORS — A STORM
ON THE BAY—AN EFFORT FOR FREEDOM—A RECORD DEPOSITED
—DEPARTURE OF HAYES AND PARTY — A DANGEROUS EXPERI-
MENT — ESQUIMAUX FRIENDSHIP — A PRIMITIVE CONTRACT —
HAYES' PARTY RETURNS — A DESCRIPTION OF THEIR WANDER-
INGS — KALUTUNAH — KANE'S WONDERFUL BUOYANCY—A DIA-
BOLICAL PLOT—ITS DEFEAT.

Long experience had made Dr. Kane's wisdom very extensive, amounting, indeed, almost to instinct. The present serious exigency received his best thought. The experiences of that awful night-winter of 1853-4 led him to shrink from exposing himself and his crew to another. If none too well provided then with food and necessaries, they were now almost destitute. How could his dispirited, diseased little band endure again the strain which a few months' absence of the sun imposed? On the other hand they were now in no condition to attempt an escape or change of residence for the winter. Half the men were on the sick list, and it was not certain where relief could be found. Besides, how could he abandon the Advance when any possibility of saving her remained? It was true that this summer had brought the open water only four miles nearer than it had been in the spring; but the fortunes of another summer might prove more propitious. If he could reach Beechey Island he might find some means of replenishing his stores, or possibly fall in with some vessel to whose company he could communicate the whereabouts of his unfortunate party, and thus bring them succor. After examining all the arguments for and against, he concluded that to leave the ship was impossible. His last remaining expedient was to communicate with Beechey Island if possible, and, by reaching the British search squadron, obtain relief in that manner.

Preliminary to so hazardous and doubtful an undertaking, a meeting of the officers was called, and the possibilities and impossibilities of the plan were carefully considered, and the ice charts for the proposed route were shown. Concurrence and co-operation were not urged upon the officers; they were left to a voluntary choice as to their action in the matter. All, however, seemed satisfied and relieved when the project was divulged to them. Every man on board volunteered, but only five active men were chosen to participate in the fortunes of the journey.

The equipment, which had been preparing for some time, though without the object being understood, was now completed. A boat twenty-three feet long, and six and a half wide in the middle, was fitted with sails, and remodeled as well as the carpenter's limited resources would permit. A quantity of food was placed on board, and a party consisting of all except the sick, was detailed to "sledge" the boat and draw it to open water. This proved a most arduous task. The ice was troublesome, being loose and rough; and the repeated straining of the sledge caused it to break down, and this led to a tiresome journey of twoscore miles in quest of another. Through untiring perseverance the open water was at last reached, and the boat launched on its bosom.

Journeying southward through Smith's Strait, a piece of good fortune befell the voyagers. Upon a small island near the eastern coast, it was found that large numbers of ducks of various kinds were nesting. Some of these were feeding upon the animal life of the sea, while they in their turn were being picked off by the dozen by members of a stronger variety. Our navigators, in predatory sympathy, fed voraciously on all, and promptly laid by a store for future use.

Observations upon the coast confirmed the inferences already announced, viz: That the projections of Capt. Inglefield upon the map of the admiralty had been faulty and inaccurate. Dr. Kane would have hesitated in making such an announcement had not the observatory from which he was in the habit of checking his instruments and results been constructed with careful reference to astronomical observations, and its position determined to a nicety. Capt. Inglefield had made the coast

trend some 20° degrees too much to the north, thus giving the capes and inlets discovered too high a latitude, by some miles.

At last the time came for the party to bear westward across the channel, and they soon passed out of the Strait's protection into the open sea. Out of sight of land, in a mere cockleshell of a boat, and with a freshening wind boding an approaching gale, their feelings may be better imagined than described. Baffin had traversed that gulf 230 years before, but his ships were far larger and better fitted for heavy waters than the little boat in which our heroes ventured. The gale arose, and for twenty-two hours they were driven to and fro upon the troubled waters. Only the consummate skill of Mr. McGary—than whom, Kane declares, "there is no better boatman in the world," the boat would have been swamped in an hour, and even he, hardy old whaler as he was, often lost hope, and gladly hailed the moment when an approaching floe offered them a temporary protection. Anchored to this, they rode out the storm.

It now became necessary to look about them and find in what condition the storm had left them. They seemed, at first, permanently beset. The ice had closed around them from every direction, and the horizon in every part of its circle was girt with it. Kane knew that they might depend upon the warm winds from the south to scatter the pack and give them means of exit; but he saw that his officers had no such hope. At last the sun appeared, and leads began to open in every direction. As they worked their way through the opening pack each point around which they turned brought them nearer the Greenland shore. To cross the channel seemed now impossible, and it was determined to try and reach some southern point on the east side of Baffin's Bay. The next week was filled with almost constant exposure and danger. The rain fell in torrents, and drenched them to the skin, while the boat was so filled with the falling water that it required almost constant baling. Again the closing ice on every hand threatened constant nips to the unprotected boat. Not an hour passed without witnessing the necessity of hauling the boat on the ice to escape a closing lead. In the midst of it all, one of the number fell sick from exposure and lack of

sleep. Perseverance and pluck, however, at last overcame the many obstacles, and they found themselves close to the coast of Greenland within ten miles of Cape Barrow. Coasting for some distance among the islands along the eastern shore of the Strait, and meeting with no important adventure nor hopeful sign, they decided to return to the brig and report their adventures and failure.

One last desperate attempt to liberate the ship was now resolved on. The brig had been now nearly a year confined by the ice, during which time she had not changed her position an inch. It was hoped that by a judicious use of blasting-powder, a lead might be sufficiently opened to admit of her safe passage out into the open water. The hope was a feeble one, for the ice to be encountered was of massive thickness, measuring sometimes nine feet above the water level—indicating a whole thickness of sixty-three feet.

At first some progress was effected. One canister of powder, containing five pounds, was sufficient to remove two hundred square yards of ice. As fast as the way was opened the ship was warped along a few yards at a time. Finally she was towed into a small bight, where she would be in safety until more extensive measures should be taken for her release. It was observed in the meantime with the greatest concern that new ice began already to form. The birds began to fly to the south. The progress through the deep floes was insignificant at best, and the faces of all lengthened as the prospects of release dwindled away and finally seemed altogether to vanish. After one final and thorough examination Dr. Kane decided to move the ship no further. Hope of complete liberation must be abandoned, and to remove the ship from her present secure position might expose her to unnecessary danger and perhaps destruction.

The climax of the expedition being now reached, it was decided, as a prudent step, to make a full record of procedures in a concise form and deposit it where it could not fail to be discovered by searchers in that vicinity, if, as was possible, the party should all perish before they could make or find a means of escape. The experience on Beechey Island five years before impelled him to be particularly careful about this office.

On a large rock, then, facing the opening from the west, was painted in bold, black letters, "THE ADVANCE." A hole was drilled in this rock and in it was placed a bottle carefully sealed with melted lead and containing a brief record of the experience and discoveries of the expedition from the time it was beset until the date of the record.

Kane now reflected that it would be unjust, and perhaps inhuman, to require the whole party to remain at the brig against their wishes and better judgment. As for him, he felt that honor required him to abide by his vessel, and he presumed that with a party of determined men the result need not be feared, in spite of the gloomy prospect. But he felt as he always had, the greatest deference for the feelings and opinions of his men, and he decided to make it optional with each one whether they should go or stay.

Calling them together, he laid before them the situation, advising all to remain with the ship, but giving any and all the liberty of choosing their course. Those who should decide to go, were to choose their own officers and abide by their counsel and commands; relinquishing for the time all claim upon Dr. Kane and those who might remain with him. The roll was called, and each was allowed to speak for himself. The result was that Dr. Hayes, with eight others, decided to attempt an escape to the south.

"I divided to them," says Dr. Kane, "their portion of our resources justly and even liberally; and they left us on Monday, the 28th of August, with every appliance our narrow circumstances could furnish to speed and guide them. One of them, George Riley, returned a few days afterward; but weary months went by before we saw the rest again. They carried with them a written assurance of a brother's welcome should they be driven back; and this assurance was redeemed when hard trials had prepared them to share again our fortunes."

Their friends having departed, the remainder of our little band set about making their winter home as tolerable as possible for the coming severe season. Large quantities of moss were gathered, and brought in sledges to be used in banking up the brig, making it very like an Esquimaux "igloe." The need of fresh meat began to be real and press-

ing. The sick, who now comprised most of their number, could not be sustained upon a scurvy-producing diet of pork and beef. This need led to an adventure which was well-nigh fatal to all concerned in it. Dr. Kane and Hans, the Esquimaux, set out one day to look for seals. It was their intention to remain out four or five days, tenting in the open air, for the thermometer still showed some degrees above zero.

At first they were surprised to find how far they had to go to reach the open water. The swiftly advancing winter had made a solid ice-plain of the spot where they had hoped to find seals playing in great numbers. At last the edge of the water was reached, and several of the



WATCHING FOR A SEAL.

polar beauties were discovered gamboling about in their native element. To their great consternation, Kane and Hans suddenly became aware that they had driven upon a belt of unsafe ice which threatened to give way at any moment, and precipitate them into the freezing flood. Any stop was fatal. Fear and vigorous application of the whip gave the dogs their greatest rapidity, and they sped like an arrow over the yielding mass. But such an effort could not last. One of the runners broke in, and then dogs, sledge, and men, were successively precipitated into the congealing mass about them. Fortunately for the Esquimaux, he had brought his kayak, and in it was prepared for such an emer-

gency; but Kane, after cutting the dogs loose, found himself struggling in the water, and growing weaker with each new attempt to escape. The Esquimaux, in the meantime, like a good Moravian, was praying loudly upon the solid ice. "At every fresh crushing-in of the ice, he would ejaculate 'God!' and when I re-commenced my paddling he recommenced his prayers."

It was only after a series of the most desperate efforts, that Kane at last succeeded in establishing himself again upon the solid ice. Here he was "frictioned" by the Esquimaux to an extent which caused him to dismiss all fear of evil results from his ducking. The dogs were saved, but the entire equipment of sledge, tent, guns, and robes, was lost in the water.

It may interest the reader to note the manner in which our party of explorers was again brought in contact with the Esquimaux; and to mark the subsequent chain of events which, through common hardships and sufferings, seemed to bind natives and seamen together in enduring friendship. It is curious to observe the different characteristics which different explorers have attributed to this peculiar people. Franklin and Kane, as we have seen, found them dishonest, having the idea of property, at least as regards other races than their own, almost wholly wanting. Hall, on the other hand, as we shall duly relate, found them as he says, "scrupulously honest," though not scrupulously clean. It is probably true that their dishonesty, as indicated in the cases of Franklin and Kane, was rather due to a shallow knowledge of international laws, and a very limited experience in the matter of contact with other races, than to a depraved moral condition.

During Kane's absence, in his futile attempt to reach Beechey Island his remaining men had had free intercourse with those of the neighboring natives who were inclined to be friendly. In spite of the unpleasantness occasioned by their pilfering, Kane, upon his return, encouraged this intercourse and took steps to make it mutually profitable. He saw that the only danger of the crew was in the absence of fresh meat. If an alliance could be made with these natives, accustomed to the rules of Arctic hunting, this perplexing problem of anti-scorbutic food might be easily

solved. A little determined action on the part of the whites brought the two parties to an understanding. Certain articles having been stolen and carried off, Kane dispatched two active men in pursuit, with orders to bring the culprits back, and to compel them to restore the stolen goods. This was promptly done, and resulted in a compact satisfactory to all concerned. Stolen goods were returned from all quarters, and a treaty entered into with every tribe within the social radius.



CATCHING BIRDS.

The provisions of this novel and primitive treaty were as follows: "On the part of the Innuit or Esquimaux: 'We promise that we will bring you fresh meat. We promise that we will sell or lend you dogs. We will keep you company wherever you want us, and show you where to find the game.'

"On the part of the white men, the stipulations were of this ample equivalent: 'We promise that we will not visit you with death or sor-

cery, nor do you any hurt or mischief whatever. We will shoot for you on our hunts. You shall be made welcome aboard ship. We will give you presents of needles, pins, two kinds of knives, a hoop, three bits of hard wood, some fat, an awl, and some sewing-thread; and we will trade with you of these and everything else you want for walrus and seal meat of the first quality.’’ To the credit of both parties be it said that in all the intercourse of that winter of 1854-5, this treaty was never broken.

It is curious to notice the extraordinary change in appetites and habits which a few months' sojourn in so rigorous a temperature had effected. The disgusting blubber and raw walrus meat of the natives had grown to be a luxury. Thus do the feelings adjust themselves to the physical requirements of the different zones. “The liver of a walrus eaten with slices of his fat, of a verity, is a delicious morsel! Fire would ruin the curt, pithy expression of vitality which belongs to the uncooked pieces. Charles Lamb's roast pig was nothing to it. I wonder that raw beef is not eaten more at home. Deprived of extraneous fiber, it is neither indigestible nor difficult to masticate. With acids and condiments it makes a salad which an educated palate cannot help relishing; and as a heat-creating and anti-scorbutic food, it has no rival.”

The reader would be wearied by the detail of events which occurred during the last months of 1854. It is sufficient to say that amid increasing privations, and with disease threatening to hopelessly weaken the little band, the close of the year drew near.

On the 7th of December the weary watchers at the brig were surprised by the appearance of several sledge-loads of Esquimaux, bringing among them Bonsall and Petersen, two of the party who had gone out with Dr. Hayes during the last days of the previous summer. They reported the remainder of the party two hundred miles away, their resources wasted, health broken, and themselves divided in counsel, and hesitating as to their future course. Kane's first thought, of course, was of relieving their necessity. But he had to meet the question, “Who could go to their relief?” Not a man except Mr. McGary, Hans, and himself, was able to stir. His only hope lay in trusting what provisions he could spare to the Esquimaux, and depending upon them to con-

vey the desired assistance. He would willingly have gone himself had it been practicable to leave his hospital. As it was, he had many doubts and misgivings as to whether the natives, under temptation, could be trusted with the precious freight which they were now carrying.

These reflections were ended on the 12th by the return of the wanderers. They were suffering terribly from cold, and were nearly famished. "Poor fellows," says Kane, "I could only grasp them by the hand and give them a brother's welcome."

Their story was an almost continuous record of suffering and thrilling adventure. Their plan had been to reach Upernivik on the Greenland coast, and from there to send assistance to the residue at the brig. They had hoped to reach open water at no great distance, but in this they were disappointed; besides, the ice was so rough and broken in one place that it took them three days to make six miles, dragging, as they were compelled to do, their boat and provisions over its rugged surface. Some of them were naturally ready to return almost before they were fairly under way. Winter was coming on, starvation stared them in the face, and their energies were fast being broken. After they had labored on for several weeks it became evident that they must find some place of shelter. A hut was improvised from boulders and an old sail, with such other articles as could serve any purpose. As Franklin had done, they attempted to lengthen out their scanty provisions by the use of the *tripe de roche*, or rock lichen; but it acted as a laxative, and producing still greater debility, added to their embarrassment. Some Esquimaux came to their wretched hovel, and brought them a limited supply of fresh meat, but would not accede to any request to sell or lend their teams. A plot on the part of the natives to destroy the entire party having been defeated, Dr. Hayes again tried to treat with them in reference to their teams. He says:

"I now repeated to Kalutunah, their chieftain, a request which had been made on previous occasions, namely, that the people should take us upon their sledges and carry us northward. His answer was the same that it had been hitherto. It was then proposed to him and his companions that we should hire their teams from them; but this they also declined to



MALATUNAH.

comply with. No offers which we could make seemed to have the slightest effect upon them, and it was plain that nothing would induce them to comply with our request, nor even give any reason for their refusal. In fact, they thoroughly understood our situation, and we now entertained no doubt that they had made up their minds with a unanimity, which at an earlier period seemed improbable, to abandon us to our fate, and to profit by it.

"The question to be decided became an easy one. Here were six civilized men who had no resort for the preservation of their lives, their usefulness, and the happiness of their families, except in the aid of sledges and teams which the savages obstinately refused to sell or hire. The expectation of seizing our remaining effects, after we should have starved or frozen to death, was the only motive of their refusal. The savages were within easy reach of their friends, and could suffer little by a short delay of their return. For their property, compensation could be made after our arrival at the brig."

A plan to secure the services of the teams was at once organized, and steps taken to carry it into execution. The natives were gathered together, and shown the utmost kindness in order to remove the suspicions recently entertained of the whites. Pictures were given them as presents for their children, and a great feast was promised. While this was preparing, Dr. Hayes managed unobserved to empty the contents of a small vial of laudanum into their favorite soup, hoping that it would assist in making them sleep, thus facilitating the escape with the dogs and sledges. Everything was covertly put in readiness, and after the dinner had been eaten, signs of drowsiness among the Esquimaux were anxiously looked for.

"Our guests were in a few moments asleep, but I did not know how much of their drowsiness was due to fatigue (for they had been hunting) and how much to the opium; nor were we by any means assured that their sleep was sound, for they exhibited signs of restlessness which greatly disturbed us. Every moment had therefore to be conducted with the utmost caution."

At last everything was in readiness, and the party started out. Some

disturbance had been made in starting, and they were not, therefore, surprised to see, before they got out of sight, those whom they had clandestinely left behind, come toward them with full speed. They were obliged at once to take some definite action. They leveled their rifles at the approaching savages. These, seeing their danger, made gestures of submission, and at last promised to do all that was asked of them. They took the whole party on their sledges and brought them to the brig, where, as we have seen, they arrived on the 12th of December.

Words cannot describe the horrible experiences of the remainder of that Arctic winter. Sickness had prostrated nearly every one, and the results of this were intensified by the depression of spirits which it seemed impossible to shake off. It was all that the commander could do to bear up under the pressure, and sustain the feelings of his men, whom a settled melancholy seemed to have seized. Bright and hopeful as he always managed to appear, his journal records some fearful "sinkings of his heart within him." He had often to perform the fourfold duty of nurse, physician, cook, and provider of fuel, besides taking his place as watchman nearly half of the time. There is recorded no more marvelous sustaining of the soul than is shown in the case of this man. This was the third time that he had witnessed the spirits of his men die out with the light of the departing sun, and had been compelled to see them sinking under disease during a long and tedious winter night; and this was the third time that he had been first and ablest of all his company to hail the return of the day-god.

In the midst of all trials, Kane was resolved to preserve the most rigid discipline and the most perfect routine. It was at least a remembrancer of civilization, and it served to promote the confidence of the men, weakened by disease. It would hardly seem that mutiny or desertion need be feared in this dreary waste, but we find that both occurred; and of the most diabolical type. The description of this experience will recall the circumstance referred to in the chapter of Kane's biography. One William Godfrey, a sailor, had, it seems, been particularly troublesome throughout the voyage. He and a shipmate, John Blake, were

bad fellows, of whom Kane declares that he was curious to know what might have been their past life. Certain foreboding whisperings had led Kane to suspect a plot, and put him at once on his guard. One day a sailor reported having overheard a conversation between the two disaffected seamen to the effect that they would leave the ship as soon as possible. Being able-bodied men, and nearly well, they could not be spared from service, and their desertion would also probably have a prejudicial influence on the neighboring Esquimaux.

When the two came to leave the ship, they were promptly confronted, apprehended, and put in irons; and Godfrey, the instigator and leader in the step, was severely punished. At first he confessed all, and made fair promises for the future; but being released, he went on deck ostensibly to work, and deserted again within an hour. It happened that Hans, the Esquimaux, had gone out with the sledge a few days before, and was supposed to be at the Esquimaux settlements some seventy miles away. The plan of Godfrey was supposed to include the seizure of the dogs and sledge, thus depriving the famine-visited party at the brig of the last precarious means of subsistence. Kane at once saw the necessity of suppressing such a proceeding at the first start. He accordingly dressed as an Esquimaux, appeared mysteriously in the village, and before Godfrey could recognize him, had him in irons.

The winter of 1854-5 wore away, and the advancing sun brought improved symptoms to the sick, and a measure of hopefulness to all. The situation even yet was dreadful. All had long since concluded that the brig never could be liberated, and escape in that way was out of the question. The men were still so reduced in strength that when a deer was killed, it was a matter of serious difficulty to transport the body to the ship. A dearth of fresh meat was still at times a difficulty hard to overcome. The Esquimaux themselves were in a starving condition, so that aid from that source was not to be hoped for. One of the stoutest officers on board, on looking at himself in the glass for the first time since his illness, burst into tears to find how reduced and wretched in appearance he had become. There was sad truth in Kane's summing up of the matter, "Without a speedy change the fate of the party was inevitable."

CHAPTER LIX.

KANE DETERMINES TO ABANDON THE BRIG — REMOVAL OF BOATS AND SLEDGES — TO THE WATER'S EDGE — PARTING FROM FRIENDS—HANS PROVES SUSCEPTIBLE—EMBARKING—A FEAST—A SEAL KILLED — THE ANNUAL OIL BOAT—ARRIVAL AT UPER-NAVIK—HARTSTENE'S SEARCH—KANE'S LAST DAYS.

The party had now been in the ice about two years and the day of the brig's release seemed as far away as ever. A careful reference to the reports of Dr. Kane and his officers reveals some important facts relative to the necessity of their abandoning the Advance. Dr. Kane had requested his ice-masters to examine the ice surrounding the brig and shutting her from the open sea, in order to determine its condition compared with that of the previous season, and the probability of its allowing the Advance to effect an exit this year of 1855. The above mentioned officers reported that the ice was thicker and stronger than it was the year before, and extended for miles further out, and that a breaking up under these circumstances, which would allow the brig to escape, was not to be looked for as the result of a single summer.

It was further found that all the fuel had been taken from the substance of the Advance which could be taken and still leave her sea-worthy in case of subsequent release; and that not above half a month's fuel could be gathered from the whole store. Moreover, their stock of provisions had become so reduced that not over thirty-six days' food remained. These discouraging facts were certainly sufficient to justify Kane in making immediate preparations to leave his vessel and depart for the south in whatever way was deemed practicable.

After due consultation it was decided to put the boats, supplies and sick men upon sledges, and transport them to what was considered the open sea, and then proceed southward until some fortune should drive

them upon friends, or until they should reach Upernivik, trusting to Providence to supply them with food when it should give out. This agreed upon, the officers and crew proceeded to take final and formal leave of the brig. A portion of Scripture was read, and a few words spoken by Dr. Kane, reviewing their past experience, and speaking of



KANE, WIFE AND RELATIVES.

hope for the future. They marched around the brig, commenting on her appearance, and rehearsing the time and place when certain scars on her surface were given. The figure-head, a representation of a little girl with painted checks, was taken from the bow. Dr. Kane was at first doubtful about adding this to the already heavy burden, but the men

reasoned that it could be burned for fuel if they could not carry it; so it was put upon the sledge to be transported to the water's edge.

Then began a long series of hard days' work, for which the men, debilitated by suffering and unused to toil, were utterly unfitted. The provisions and necessaries had to be taken from the ship and transported a short distance at a time till the land ice was reached. When at length this was accomplished, a shift was made for a sail, and they sped swiftly across the floe toward the wished for water. Their dusky friends had accompanied them to the water's edge, and encamped there to say their last good-byes. In them they had found for the most part friends, and wretched and dirty as they were, their hearts went out toward these hospitable denizens of the ice. The natives gave abundant proof that their feelings were sincere. They crowded around the mariners, pressing upon them gifts of fresh birds, and expressing in the most lugubrious strains their regret at their coming bereavement.

"My heart warms," says Kane, "to these poor, dirty, miserable, yet happy beings, so long our neighbors, and of late so staunchly our friends. Theirs is no affectation of regret. There are twenty-two of them around me, all busy in good offices to the 'Docto Kayens,' and there are only two women and the old blind patriarch, Kresuk, left behind at the settlement. * * * We cook for them in our brig camp-kettle; they sleep in the Red Eric; a berg close at hand supplies them with water; and thus rich in all that they value—sleep, food and companionship—with their treasured short-lived summer sun above them, the *beau ideal* and sum of Esquimaux blessings, they seem supremely happy."

We have omitted hitherto to state for the benefit of those interested in Hans, the Esquimaux, that, infatuated by the charms of the lovely daughter of an Esquimaux chieftain, he had one day left the ship's company not to return. At the time of Kane's departure, he heard that Hans was living happily among the people of his choice, and that by his prowess and experience he had become the great man of his chosen tribe. We shall next hear of him in connection with Hayes, the explorer of some years later.

After leaving their friends and embarking on the sea, the floating ice

of the sound came upon them in dangerous quantities for many days. Overcoming these difficulties, after a time they caught sight of a flock of eider-ducks, and soon became aware that they were at the breeding place of these aquatics. A recess was found among the ice-covered rocks along the shore, and into it the crew pulled their little fleet, and set apart several days for the replenishing of their stock of eatables.

"We remained almost three days at our crystal retreat, gathering



OFF TO THE OPEN SEA.

eggs at the rate of 1200 per day. Outside the storm raged without intermission, and our egg hunters found it difficult to keep their feet; but a verier set of gourmands than were gathered within, never reveled in genial diet."

When at length they started again on their way new obstacles were met with. In passing into the less dense atmosphere, they found difficulty in breathing, and their feet swelled so that it became necessary to

cut open their canvas boots. A troublesome form of insomnia also attacked them, and did much to deprive them of rest. Their ravenous appetites had made fearful inroads on their larder, and the scrimping consequent upon this made all weak, and some of them nearly prostrate.

"It was at this crisis of our fortunes that we saw a large seal floating on a small patch of ice—as is the custom of these animals—and seemingly asleep. Signal was made for one of the boats to follow astern, and trembling with anxiety we prepared to crawl down upon him. Petersen, with the large English rifle, was stationed in the bow, and stockings were drawn over the oars as mufflers. As we neared the animal our excitement became so intense that the men could hardly keep stroke.

"I had a set of signals for such occasions, which spared us the noise of the voice, and when about three hundred yards away the oars were taken off, and we moved on in silence with a single scull astern. He was not asleep, for he reared his head when we were almost within rifle shot, and to this day I can remember the hard, careworn, almost despairing expression upon the men's thin faces, as they saw him move. Their lives depended on his capture."

The seal was killed, and was torn in pieces and devoured almost raw by the half-famished men. Every part of this animal was saved. Even the entrails found their way into the pot without the preliminary treatment common in civilized parts. Thus a rare and savage feast was summarily enjoyed.

A few days afterward, as they were laboring across the heavy sea, a familiar sound came to them over the water. It was not the "Huk! huk!" of the natives, nor the screeching of a gull. It had, to ears too anxiously acute to be mistaken, the well known ring of a healthy "Hello!" How the men bent to their ashen oars, and how every nook of the foggy horizon was scanned for any trace of the source whence it proceeded. It proved to be a Danish shallop—the annual oil ship from Upernivik.

Here they got their first idea of what had transpired in the world since they begun, as it were, their hermitage. Not much news could be gained of America, but it was ascertained that Lieut. Hartstene had re-

cently passed up the bay in search of the party supposed from their long absence to be lost or perishing. And Sir John Franklin, what of him? How their own little specialty came up into mind, as they thought of their failure! Traces of him or remains of the party, had been found a thousand miles to the south of their searching-ground.

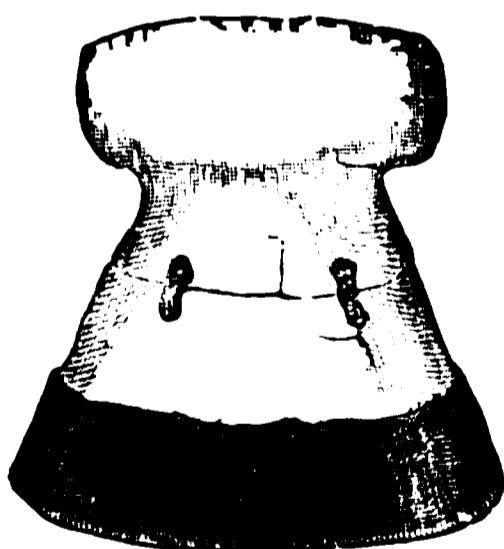
Still they rowed on, and the next day came to Upernivik, the uppermost town of Greenland. Here they were showered with kindness by the inhabitants, who regarded them as having been almost miraculously saved. They were so weather-hardened and used to exposure, that they could hardly endure to stay within walls, so suffocating was this novel experience. A few more days found them at Godhaven, where they met the rescuing party.

"Presently we were alongside. An officer whom I shall ever remember as a friend, Capt. Hartstene, hailed a little man in a ragged flannel shirt, 'Is that Dr. Kane?' and with the 'Yes!' that followed, the rigging was manned by our countrymen, and cheers welcomed us back to the social world of love which they represented." It was well into September, 1855, before they were finally on their way to their homes which had missed them so long.

It is proper in closing to mention briefly the scientific results of this remarkable voyage. Kane had not found Franklin, nor had he explored the fairy land and water which surround the Pole. But his bravery and perseverance had added immensely to the limited knowledge of the north of Greenland. Over a thousand miles of the coast had been accurately surveyed and projected, and many of the glacial wonders of this frigid region had been investigated and explained. The brave commander had not only been exceedingly zealous himself, but had planned and sent out numerous expeditions for the purpose of investigating particular phases of the polar life. Each man seemed to catch the earnest, enthusiastic spirit of his chief, and the carefully compiled reports of all these expeditions have proved invaluable. The observations on the meteorology of the country, were perfectly taken and classified. The mathematical operations used in making geographical locations, were conducted with the utmost care and skill; making the results authentic on

all points dealt with. The flora of the north was treated in a most exhaustive manner, and numerous species were analyzed and reported, which had hitherto been unobserved, or received no attention. All these things were done under circumstances so distressing and discouraging that few would have had the interest or firmness to conduct scientific investigation.

As valuable as Kane made himself to the scientific world, and as dear as he became to the hearts of the people, he was the first of that band of returned adventurers to pass away. His frail form could not endure the shocks imposed upon it by three northern winters. Broken in health, and weighed down by the cares to which he had been a prey so long, he sailed for England in 1857. Becoming worse here, he repaired to Cuba, where he died the same year at the early age of thirty-seven.



CHAPTER LX.

M'CLINTOCK IN COMMAND OF THE FOX — HIS CHOICE OF OFFICERS —
CAUGHT IN THE PACK OF BAFFIN'S BAY — A WINTER IN THE
ICE — ARRIVE ON KING WILLIAM'S ISLAND — HOBSON DISCOVERS
A RECORD — A MOURNFUL INFERENCE — TWO SKELETONS — A
CURIOS MEDLEY — TESTIMONY OF THE ESQUIMAUX WOMAN —
IMPORTANCE OF M'CLINTOCK'S INVESTIGATIONS.

We are now about to describe an expedition which, while perhaps not equaling some others in the thrilling character of its details, nevertheless achieved the long wished-for result of bringing back certain knowledge of the circumstances under which Sir John Franklin met his death.

At the time of the inception of this enterprise, the interest in such undertakings on the part of leading nations, and the sacrifice of life and money in their pursuit, had become matters of history. Traces of the ill-starred voyagers had been discovered, but no definite record of the probable fate of the expedition had, as yet, rewarded the efforts of explorers.

The devotion of Lady Franklin, which had already received ample illustration, in the large amounts of money expended by her in pursuit of knowledge concerning her lost consort, was also instrumental in the fitting out, and dispatching of this vessel; and on the 18th of April, 1857, she did Capt. Leopold M'Clintock (before mentioned as a brave and efficient officer) the honor to offer him the leadership of the proposed expedition. As might be expected, it was accepted. As a post of honor and difficulty, it would quite naturally possess sufficient charms for a naval officer who had already served in several such expeditions. M'Clintock was a gallant officer, whose heart was in the cause, and whose previous experience had made him perfectly conversant with all

the details of Arctic sailing. It seemed, and indeed, the event proved, that no more fortunate choice could have been made. The screw-yacht Fox, of 177 tons burthen, was purchased and fitted out for him, and full permission obtained for him from the admiralty to complete the search in his own way.

Not only did M'Clintock receive aid and support from Lady Franklin, but the Royal Society contributed money for the purchase of suitable instruments, and the London Board of Trade donated several articles. In fact, Capt. M'Clintock found that he had only to ask for what he wanted, to receive it if it was in store. He required, however, only such things as were absolutely necessary.

He was peculiarly fortunate also in the choice of his officers and crew. Among them were Lieut. Hobson, an officer of much experience; Capt. Allen Young, of the merchant marine, who not only threw his services into the cause, but subscribed £500 in furtherance of it; and Dr. David Walker, an accomplished surgeon, and scientific man;—all these were volunteers whose services were secured. “Many worthy old shipmates,” says M'Clintock, “my companions in previous Arctic voyages most readily volunteered their services, and were as gratefully accepted, for it was my anxious wish to gather around me well-tried men, who were aware of the duties expected of them, and accustomed to naval discipline. Hence out of the twenty-five souls composing our small company, seventeen had previously served in the Arctic search.” Just before starting, Carl Petersen, mentioned in connection with Dr. Kane's memorable expedition, joined the vessel as interpreter. The ship was amply provisioned for twenty-eight months, and the supplies included the customary stock of preserved vegetables, lime-juice, and pickles for daily consumption. The admiralty caused 6682 pounds of pemmican to be prepared, and the Board of Ordnance furnished the arms, powder and shot, and giant-powder for ice blasting. M'Clintock, being anxious to retain for his vessel the privileges she formerly enjoyed as a yacht, was enrolled a member of several of the leading clubs.

Upon June 3, 1857, the Fox left the harbor, and, with favoring winds, the coasts of Greenland and Cape Farewell were sighted on the 12th of

July. It may be well to state what, perhaps, is not clearly understood, that Baffin's Bay freezes over every winter. During the following summer the ice breaks up, and finds its way downward through Davis' Strait, frequently obstructing the passage from east to west. The North Passage is accomplished by sailing around the western end of the pack as it comes down; the South Passage by pursuing a similar course with regard to the southern end; and the Middle Passage is effected by pushing through the ice. It was M'Clintock's misfortune, after trying all these courses, to become fastened in the pack, and thus he was delayed for several months.

The disappointment of a crew eager for results, and still obliged to spend several months in fruitless drifting, may be better conceived than portrayed. The thought was unbearable that they must spend the winter in the ice, and then, even if they escaped being crushed, perhaps be obliged to return to a waiting nation without tidings of the missing and looked for. During all the 242 days, however, that they were ice-bound, the best of discipline was preserved, and the brave commander himself still remained sanguine of success. Many times the destruction of the Fox seemed inevitable. A sea of heavy ice crowded continuously about her, threatening to crush in her sides, or by sweeping over the deck to sink her, or destroy members of the hapless crew. "Every floe," as Dr. Kane explains it, "took upon itself the functions of ocean;" and thus the perils of an Arctic sea were made doubly terrible by the waste of ice.

Whenever it was possible to employ or amuse the men among these dreary scenes, M'Clintock was desirous that it should be done. An evening school for the men was arranged by Dr. Walker, and carried on with genuine success. Later on, lectures and readings were organized, and subjects of scientific interest discussed, such as the trade winds, atmospheric phenomena, and the uses of the various instruments. On November 5, being still in the pack, the men proposed to celebrate the preservation of their ancestors from the well-known gunpowder plot. An effigy of Guy Fawkes was prepared, and burnt on the ice. "Their blackened faces, extravagant costumes, glaring torches, and savage yells

frightened the dogs away; nor was it till after the fireworks were let off and the traitor consumed, that they crept back again. It was school-night, but the men were up for fun, so gave the Doctor a holiday."

The Fox had reached Melville Bay when she became locked in the pack, and during the eight months that she was an ice-bound prisoner, she had drifted southward over 1000 miles. When at last release came with the genial breezes of Southern Greenland, it was decided to steam to Holsteinberg to rest, get refreshments and supplies, and enjoy the hospitalities of the Danes. Thence it was proposed to start anew upon their philanthropic mission. It was April 28, 1858, when they found themselves safely anchored at Holsteinberg, and on May 8 they once more spread their sails for the north. The plan now was to keep as close as possible to the Greenland shore as far up as Melville Bay, and it was hoped that it would be possible to cut across the north end of the pack and gain the British side of Baffin's Bay without much loss of time. On several occasions it seemed as if they were fated to experience the misfortunes of the preceding summer. Escape, however, was made from these difficulties without serious delay, and July found them cruising about the British coast.

Care was taken to question all natives old and young concerning any whites who had ever visited their coast; especially concerning the wrecking of ships, and the time, place, and cause of the death of any who had been known to perish. Thus the whole distance from Melville Bay, through Lancaster Sound and the shoals and inlets of the British side was gone over as far down as King William's Island. At nearly every point rumors were furnished concerning certain ill-fated ships that were said to have been wrecked, and the crews reduced to starvation and death. But, although the stories thus far listened to might furnish keys to the solution of some other problems interesting in their time and place, there was too much uncertainty and vagueness in them to be relied upon, or to form the basis of any hypothesis of discovery.

Upon King William's Island, however, they hoped for better results. Hints gathered by some former navigators pointed to the fact as probable that Sir John had met his death on this island, and it was hoped to

find some record or trace that would settle the matter beyond the dispute of cynical theorists. How successful they were will appear in the following pages. It was the morning of the 24th of May, when the little party crossed over to King William's Island. Nearly two years had elapsed since the expedition left England, and as yet not one fact had been gained in the accomplishment of their object. What but the sincerest devotion to a cherished purpose could have induced these men to sacrifice so much time in the very prime of their manhood, and spend it in danger, and difficulty, and sufferings?

The information gained from natives on this island, although partaking in some degree of the vague character of that obtained from other sources, nevertheless sufficiently confirmed their previous suspicions. Besides, certain trinkets and small articles in their possession were identified as having at some time belonged to members of Franklin's crew. Thus it was concluded that here or in this vicinity, would be found a positive answer to the troubled query.

On arrival at King William's Island the party was subdivided for purposes of sledge-travel. Capt. M'Clintock and Mr. Petersen, his interpreter, headed one party, and Lieut. Hobson the other. Each division was well equipped with clothing and other essentials to their comfort and safety. Capt. M'Clintock does not seem to have had as good success in discovering indications as Hobson, not having met natives who could give him any intelligent information; and we find him in a few weeks on the track of that officer, partly for the purpose of giving him aid in case of need, and partly to confirm anything of importance that Mr. H. might have come upon. At various points objects were now discovered, showing the track of the retreating party.

Near Cape Herschel, on the south of the island, Capt. M'Clintock at last found a cairn built by Lieut. Hobson. No wreck had been found and no natives interviewed, but he had discovered a record so long and earnestly sought for of the Franklin expedition. Before giving the details of this record it may be well to explain that documents of this character are made on blanks furnished for the purpose by the British Government—of the kind suitable for inclosing in bottles and dropping into the

sea, in case of wrecked or sinking vessels. On these blanks is printed, in six different languages, the request that the finder shall forward the same to the admiralty. The record here found was of the kind described; it was written by Lieut. Gore, and read as follows:

"MAY 28, 1847.

"H. M. S. Erebus and Terror wintered in ice in latitude $70^{\circ} 5'$ north, longitude $98^{\circ} 23'$, west. Having wintered in 1846-7 at Beechey Island, in latitude $74^{\circ} 43' 28''$ north, longitude $91^{\circ} 39' 15''$ west, after having ascended Wellington Channel to 77° and returned by the west side of Cornwallis Island.

"Sir Jno. Franklin commanding the expedition

"All well.

"Party consisting of two officers and six men left the ships on Monday, 24th May, 1847.

"GR. GORE, Lieut.

"CHAS. DEVOEUX, Mate."

There is manifestly an error in the record given above. The winter spent at Beechey Island must have been 1845-6, for the record itself makes a point of stating that, 1847 (i. e. 1846-7) was spent in the ice. This is plain, and the party's success is briefly summed up in the remainder of the record. Certain whalers brought intelligence in 1845 that the two ships of Franklin entered Wellington Channel by Lancaster Sound, and sailed up 150 miles. As is shown by the record Franklin returned southward, probably not caring to risk the fleet in the unknown waters so far from the coast of America. These results, however, the exploring of Wellington Channel and the addition to the charts of admiralty of the land on both sides must be regarded as remarkable for the work of a single season. It is thought that Franklin had demonstrated without doubt the existence of a Northwest Passage, although he was destined never to make his discovery of practical importance.

If the above record had been all, or if the remainder had been as cheering in tone as that already given, how gratifying must have been these disclosures to our weary searchers. But alas! around the margin of the record, whose contents have been partially given above, were inscribed the following words in another hand:

"APRIL 25, 1848.

"H. M. S. Terror and Erebus were deserted on the 22d April, five leagues N. N' W. of this, having been beset since 12th of September, 1846. The officers and crews consisting of 105 souls under the command of Capt. Crozier, landed here in latitude $69^{\circ} 37' 42''$ N., longitude $98^{\circ} 41'$ W. Sir Jno. Franklin died on the 11th of June, 1847, and the total loss by deaths in the expedition has been to this date 9 officers and 15 men.

(Signed.)

"F. R. M. CROZIER,

"Capt. and Sr. Officer.

(Signed.)

"JAS. FITZJAMES,

"Capt. Erebus.

"And start (on) to-morrow, 26th, for Back's Fish River."

How mournful it was to receive thus the complete assurance of a fact whose foreshadowing had long been over them! A sadder tale was never told in few words. There is something deeply touching in their extreme simplicity, and they show in the strongest manner that both the leaders of this retreating party were actuated by the loftiest sense of duty, and met with calmness and decision the fearful alternative of a last bold struggle for life rather than perish without effort on board their ships. We well know that the Erebus and Terror were not provisioned for more than three years, or up to July, 1848.

M'Clintock afterward went to the western extremity of King William's Island. Here he found that Hobson had been before him and had discovered a large boat with various other articles, such as clothing and the paraphernalia of the Arctic toilet.

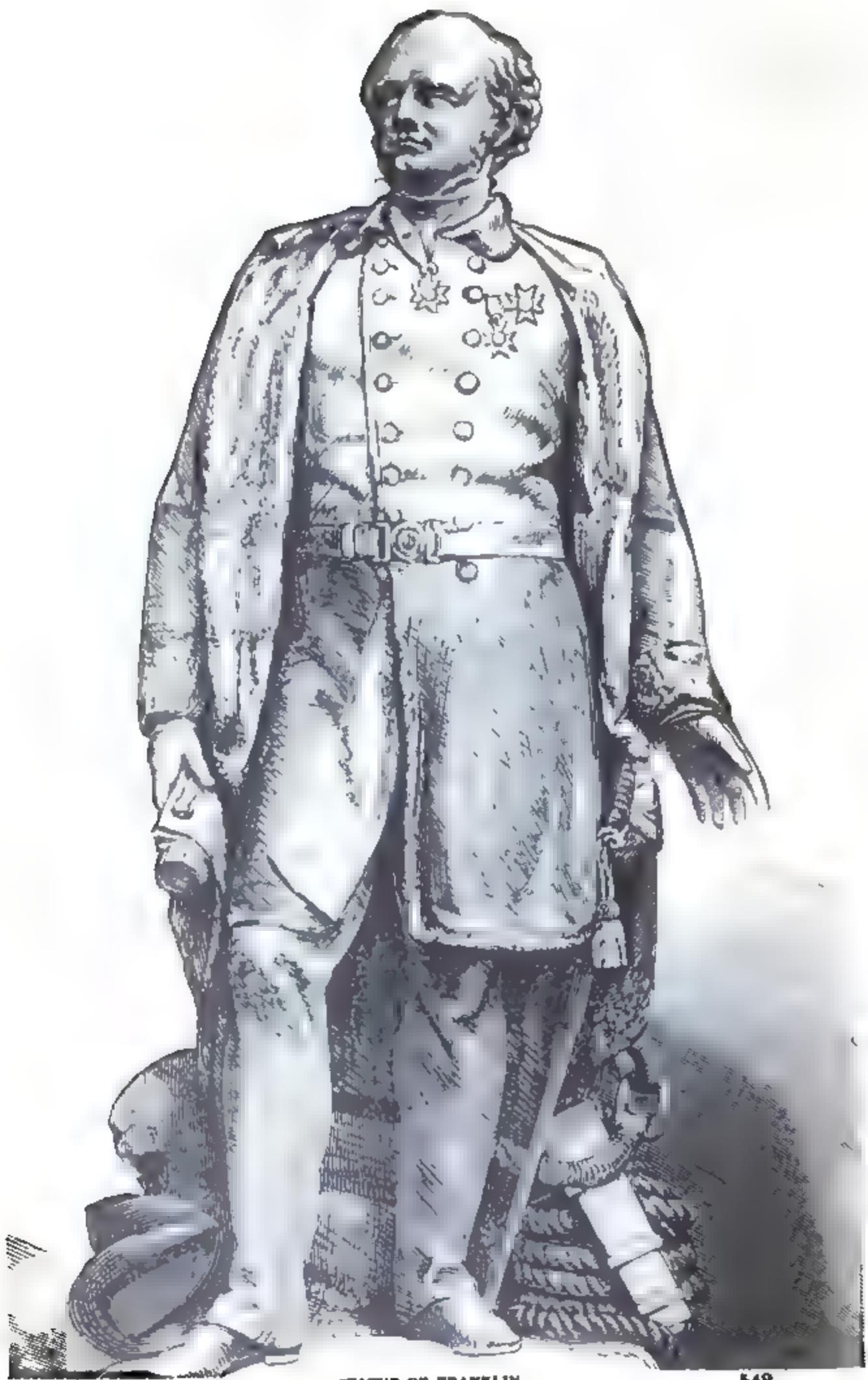
"But," says M'Clintock, "all these were after observations; there was that in the boat which transfixed us with awe. It was portions of two human skeletons. One was that of a slight young person; the other of a large, strongly-made, middle-aged man. The former was found in the bow of the boat, but in too much disturbed a state to enable Hobson to determine whether the sufferer had died there; large and powerful animals, probably wolves, had destroyed much of this skeleton, which may have been that of an officer. Near it we found the fragment of a pair of worked slippers. * * * * *

"Besides these slippers, there were a pair of small, strong, shooting half-boots. The other skeleton was in a somewhat more perfect state,

and was enveloped with clothes and furs; it lay across the boat under the after thwart. Close beside it were found five watches, and there were two double-barreled guns—one barrel in each loaded and cocked, standing muzzle upward against the boat side. It may be imagined with what deep interest these sad relics were scrutinized, and how anxiously every fragment of clothing was turned over in search of pockets and pocket-books, journals, or even names. Five or six books were found, all of them scriptural or devotional works, except the *Vicar of Wakefield*. One little book, ‘*Christian Melodies*,’ bore an inscription on the title page, from the donor to G. G. (Graham Gore?) A small Bible contained numerous marginal notes and whole passages underlined. Besides these works, the covers of a New Testament and Prayer Book were found.

“Amongst an amazing quantity of clothing there were seven or eight pairs of boots of various kinds—cloth winter boots, sea-boots, heavy ankle-boots, and strong shoes. I noticed that there were silk handkerchiefs—black, white, and figured; towels, soap, sponge, tooth-brush, and hair-combs; Macintosh gun cover marked outside with paint, A 12, and lined with black cloth. Besides these articles, we found twine, nails, saws, files, bristles, wax-ends, sailmakers’ palms, powder, bullets, shot, cartridges, wads, leather cartridge-case, knives—clasp and dinner ones—needles and thread, slow match, several bayonet scabbards cut down into knife sheaths, two rolls of sheet lead, and in short, a quantity of articles of one description and another truly astonishing in variety, and such as for the most part, modern sledge-travelers would consider a mere accumulation of dead-weight, but slightly useful, and very likely to break down the strength of the sledge crews.

“The only provisions we could find were tea and chocolate; of the former very little remained, but there were nearly forty pounds of the latter. These articles alone could never support life in such a climate, and we found neither biscuit nor meat of any kind. A portion of tobacco, and an empty pemmican-tin, capable of containing twenty-two pounds weight, were found. The tin was marked with an *E*. It had probably belonged to the *Erebus*. None of the fuel originally brought



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from the ships remained in or about the boat, but there was no lack of it for a drift-tree was lying on the beach close at hand, and had the party been in need of fuel, they would have used the sides and bottom of the boat."

Besides the things mentioned above, there were discovered several pieces of plate evidently having belonged to the officers' mess. These melancholy relics were placed in the hospital at Greenwich, where they may be seen to-day. No vestige of a wreck was found, and it seemed likely to M'Clintock and his companions that the ships had been broken up and carried out to sea. Although no particular skeleton was here identified, nor any further news found, it seemed likely that a journey had been attempted to the mouth of the Great Fish River. The captains had evidently chosen to make this last and desperate endeavor to save the lives of their crews, rather than to remain in the ships; which course, in the absence of provisions and the lack of means of obtaining any, would have been no more nor less than suicide. So the marks along the way seemed to justify the testimony of the old Esquimaux woman, who had deposed: "The white men marched along toward the great river and fell dead as they marched." Faint from lack of food, their loved commander long since gone, the last hope dying out as the last star is obscured by the thickening cloud, they had struggled on and met their fate in the land where their best work was done.

Of great importance were the discoveries of M'Clintock. Upon his return to England in the autumn of 1859, he was received with the greatest honors and warmest congratulations. He had been absent for over two years, during which time almost no tidings had come of him to prove that he had not met the destiny of those whom he sought. He received many rewards from the admiralty, and the undying gratitude of Lady Franklin, for his valor and success. Still later he was knighted by the Queen, and Sir Leopold M'Clintock has gone into history as one of the most eminent of modern explorers.

Let us add in conclusion a word in regard to the geographical importance of M'Clintock's investigations. Besides bringing to light the most important of the knowledge gained, but never published, by Frank-

lin, he himself achieved success in many ways. He proved that Strait Bellot, which had hitherto been regarded as an impassable, frozen channel, or perhaps ignored as a channel at all, is a navigable strait, the south shore of which is thus seen to be the northernmost land of the continent of North America. He also laid down the hitherto unknown coast line of Boothia southward from Bellot Strait to the Magnetic Pole, delineated the whole of King William's Island, and opened a new and capacious, though ice-choked channel, suspected before but not proved to exist, extending from Victoria Strait, in a northwest direction to Melville or Parry Sound.

The latter discovery rewarded the individual exertions of Capt. Allen Young, but very properly, at Lady Franklin's request, bears the name of the leader of the "Fox" Expedition, who had himself assigned to it the name of Franklin's widow.

Neither was the expedition unfruitful of scientific results, for while the popular mind is delighted with the graphic descriptions of the native Esquimaux and animal life, so copiously given in his interesting book, the specialist in science may be grateful to find in Capt. M'Clintock's valuable appendices many and important additions to the zoölogy, botany, meteorology, and particularly the details of the terrestrial magnetism of the regions examined.

The natural modesty of M'Clintock has prevented his doing justice to himself in his own journal. His conduct and prowess were such as could be estimated only by those whose fortune it was to serve under him, and who have been glad to testify to his great qualities in times of need and of extreme peril. The example of such men must indeed be invaluable in a country where it is desired to develop in the hearts and minds of the people those qualities of independence and devotion to a noble purpose, which tend to make the nation invincible.

CHAPTER LXI.

HALL'S FIRST VOYAGE — A GENEROUS OFFER — MR. GRINNELL'S AGENCY—KUDLAGO—SEA SICKNESS—ICEBERGS—A SAIL—DEATH OF KUDLAGO—AT HOLSTEINBERG—TO NORTHUMBERLAND INLET — RUNAWAYS—THE BLACK EAGLE — A TRANSFORMATION — A NEW USE OF THE TONGUE.

Few men have entered upon a great undertaking with less encouragement and means than did Charles Francis Hall. An American of humble birth, without friends of influence or money of his own with which to fit out an expedition to the Polar Seas, he nevertheless accomplished much more than most of those who had far superior resources. He was a characteristic American. What if his father had been a blacksmith? What if the smile of fortune had not fallen upon him? What though only an obscure journalist in the Western town of Cincinnati, if conviction, courage and enthusiasm called him to the dangerous work of Arctic exploration?

Franklin had been lost; the British Government had spent \$10,000,000 for him; Dr. Kane and others had wasted their lives in the cause without complete success. Franklin and his crew still lingered somewhere in the ice-bound coasts of King William's Land, no man knew where. Hall's heart went out in sympathy for the lost ones, and for years he was meditating upon the probabilities of their discovery and recovery before he dared to mention it. Finally, in 1859, the "call," as he terms it, became so imperative that his plan was divulged to a few intimate friends in Cincinnati, and afterward to men of more notoriety. Mayor Bishop, Gov. Dennison, Miles Greenwood, Senator Chase, and others, espoused his cause at once, and gave letters of value to aid him in securing an outfit. But whence was such an outfit to come? Mr. Hall at first concluded to apply to the English Government for a ship which had been

used in exploration before, and was at the time on the docks awaiting repairs. For some reason, however, application was never made for this vessel. In fact, it was but a short time after making known his intentions that the generous-hearted firm of Williams & Havens, New London, Conn., sent the would-be explorer the following letter, thereby making all other efforts to secure a ship unnecessary:

"CHARLES FRANCIS HALL:

"DEAR SIR:—As a testimonial of our personal regard, and the interest we feel in the proposed expedition, we will convey it and its required outfit, boats, sledges, provisions, instruments, etc., free of charge, in the barque George Henry, to Northumberland Inlet, and whenever desired we will give the same free passage home in our ships."

This offer was at once accepted. The George Henry had been tried in Arctic waters and proved faithful, and it now only remained to have a smaller boat built to accompany the larger vessel. It was not long before the contract for building the new craft was awarded to Mr. G. W. Rogers of New London. This ship-builder had fitted out Kane and DeHaven. Hence, with some personal supervision by Mr. Hall, and much valuable advice by Henry Grinnell, of New York, the old Rescue was refitted as an attending schooner.

By this time men in various parts of the country became interested in the new movement, and letters of encouragement were pouring in to the adventurous journalist, while more substantial tokens of interest and regard were received from several sources. Still Mr. Hall's purse was low, and his needs great. He presented his cause to private individuals; he went before geographical and scientific societies, and wherever a dollar could be secured, there this determined man of the future was to be found.

As has been intimated, the success of this voyage was due more to the generous-hearted and courageous explorer, Henry Grinnell, than to any other one person. Mr. Grinnell assisted with money, with cheering words, with wholesome advice, and with his superior influence. Mr. Hall's blunt manner, determined look and thorough knowledge convinced the merchant that no man was better fitted to undertake this dan-

gerous expedition, nor did adverse opinions, limited means, and the ill success of past voyages deter him a moment from giving all the aid possible, and finally from seeing the brave crew aboard the north-bound vessels, filled with the hope of great discoveries.



CHARLES FRANCIS HALL.

It was May 29, 1860, when Charles Francis Hall, on board the *George Henry*, sailed from New London, Conn., for the Arctic regions. His heart was sad at leaving friends, home and country, whom he might

never see again, but filled with the great purpose which had driven him from his Ohio fireside, and out upon the unknown sea of discovery. Around him were gathered the George Henry's crew, with Capt. Buddington, an old Arctic sea captain, at their head, and many stout hearts among their number.

The Rescue was to keep in sight of the other vessel, if possible, and lend assistance when such might be required. There were twenty-nine individuals on the two ships, besides Mr. Hall and an Esquimaux by the name of Kudlago. The means had not been sufficient to supply the expedition with many articles needed, but everything that was absolutely necessary had been secured. This included instruments for scientific investigations, provisions for crew, presents of beads, shirts, and trinkets for natives, and a large sledge.

The winds were favorable on the first day out, and the two vessels skipped over the blue Atlantic as though in high glee at being once more upon the broad ocean, with such an extensive field for sport before them. Most of the crew had been on northern trips, and all were sailors of experience. Mr. Hall, however, was taking his first voyage upon the ocean, and hence began soon to realize the bitter experience of a much shaken-up physique. This sea-sickness continued for several days, during which time the brave navigator concerned himself more about the temperature and peaceful condition of his own organism, than about the Polar seas. Few things transpired, indeed, to excite the attention during the first few days. A school of whales blowing water high into the air was met with, but the crew not caring to tarry on the way, no harpoon was thrown at the marine monsters.

About the 13th of June a terrible squall struck the George Henry, dashing the spray in wildest fury, and almost submerging her at times, but bravely did the noble ship plow through the deepest trough, climb the mountain waves, and come out of the wild warring elements uninjured and undismayed.

Although well shaken, all on board enjoyed the excitement, and when again they were skimming along over a beautiful clear sea, no merrier crowd of mariners could be found. On June 21 Mr. Hall re-

marked the thermometer falling, and predicted the nearness of icebergs. Capt. Buddington, and an old tar by the name of Sterry, however, laughed at the idea of seeing those Arctic travelers so soon. The explorer maintained his position, which, indeed, was verified about ten o'clock that night. When the huge spectral figure arose from the bosom of the deep, and stood erect to the height of one hundred and fifty feet, no grander spectacle had ever been witnessed by many aboard the vessels. To see a massive crystalized form shining in the moonlight, and moving majestically, but noiselessly along, as though propelled by fairy hand reaching down from whence it had come, was a sight calculated to awaken the sublimest feelings of the human heart.

After this it became no longer a rare occurrence to meet with these monster messengers from above. They were seen in all shapes, and of all sizes.

Nor were icebergs the only objects that now enlivened the view. Ever and anon a huge black form would be seen gliding slowly along beneath the surface, in a few instances 100 feet long. To one who had never before seen marine animals of any size, the sight of these monarchs of the deep was thrilling in the extreme. Thus day after day sped, and night after night settled over the voyagers; each day and each night bringing sights never witnessed before. It was on June 26, while the explorer was out upon the deck enjoying the scenery, about midnight, that the "Northern Lights" suddenly flashed on his vision. Startled at first by such a phenomenon, he at length began to reflect upon the cause. It was not the Aurora Borealis—not an electrical display of atmospheric fireworks—merely *the reflection from a northern sun long after its retirement below*. Theory had taught it, science had discussed its probability, but few eyes, indeed, had ever witnessed such a sight—the entire north being all ablaze with a flood of golden glory. Old Sol, loth to leave a world so much in need of his presence, had sent back a last bright smile to cheer the hearts of those whom he had forsaken.

On the morning of June 27, the cry of, "A sail! a sail!" was heard. Immediately all hands were on deck, eagerly gazing in the direction of

the sighted craft. The American colors were run up on the George Henry, and were soon acknowledged by the approaching vessel, which carried the Danish flag. By the aid of a powerful glass Mr. Hall discovered the name of the visitor to be Marianne. He at once remembered this to have been the name of the vessel which conveyed Dr. Kane and crew from Greenland to New York after their memorable voyage several years before. Denmark annually sends a vessel to Greenland to carry provisions and necessary articles to her subjects upon that lonely island. The Marianne had been on such an errand at this time, and was just returning to her native port.

The sight of a friendly sail, the sound of a human voice, though heard from the throat of a trumpet miles away, was a relief to the Arctic-bound crew which only those in similar circumstances could possibly appreciate.

From this day until the time when the George Henry dropped anchor off Holsteinborg, Greenland, little occurred worthy of note. One circumstance, however, of great importance to the navigators, must not be omitted, viz., the death of Kudlago, the Esquimaux. He had contracted a severe cold when a few days out from New London, and never recovered. All the crew felt greatly attached to this queer-looking, but kind-hearted specimen of the *genus homo*, and when his spirit took its flight a general feeling of sadness pervaded the entire company. Proper services were held over his remains—Mr. Hall conducting the religious exercises—and then the mortal part of Kudlago was lowered to the water's edge, and sunk into the bosom of the deep.

Fogs and ill winds kept the two vessels away from their destination on the Greenland coast until July 7, 1860, when they cast anchor in the beautiful harbor of Holsteinborg. Forty days and forty nights had they been out upon a perilous sea, where constant watching and the utmost care had to be exercised to avoid being wrecked upon icebergs, or dashed to pieces by the furies of a northern storm, and the sight of land was hailed with great delight.

When the crews of the Rescue and George Henry had planted their feet once more upon dry land, surrounded with wandering Esquimaux,

the sense of loneliness felt while out upon the ocean immediately vanished, and a feeling of thankfulness and satisfaction took possession of each heart. More than a thousand miles had been traversed in one of the most dangerous seas of the globe. But they had come safely through. They beheld with their own eyes, and touched with their own feet, the far-famed Greenland of the north. They at last stood upon the shores of that country unknown to the civilized world until the tenth century, and almost undeveloped since that time.

The first place which Mr. Hall visited was the governor's mansion. Said mansion was not so palatial as could be found in portions of Europe or the United States, as it consisted of but three or four rooms, and these all on the first floor. But everything was found to be neat and cleanly, as, indeed, were all the houses in this far-off town of Holsteinborg. Governor Elberg had lived here for a number of years, receiving a regular salary from the Danish Government. His wife and child had departed from Copenhagen but a short time previous to the arrival of our explorers, and the governor was rejoicing over the prospect of having his family with him, when the news reached Greenland that the vessel had been wrecked, and the loved ones lost in the cruel sea.

Mr. Hall found the governor a remarkably pleasant gentleman, obliging and courteous. Everything was done for the comfort and entertainment of the visitors which could be devised. Information regarding the island and natives, histories of former navigators, and assistance in repairing the George Henry, were gladly given by the genial governor. Mr. Hall found that there were only ten Europeans in Holsteinborg, although there were two hundred and fifty in all Greenland. A priest and two school teachers were among the inhabitants, and a very flattering development in morals and education was found. Boys and girls, many of them younger than are usually found in our public schools, had been taught to read and write, and their proficiency was marvelous.

During a stay of eighteen days among the inhabitants of Holsteinborg our heroes attended divine worship, several sessions of school, and many dances. The latter were considered by the natives the highest form of

amusement. Nor were they much less appreciated by our rough and ready sailor boys, who, with their fair Esquimaux partners, "tripped the light fantastic toe" after the most approved style. Most of these entertainments were given on shore, but before departing preparations were made on shipboard for a grand ball. Accordingly, when the day set for the party had arrived, the kayaks of the natives began to shoot out from the shore, and long before the appointed time, nearly every family of Holsteinborg was represented on the George Henry. The sailors took to the sport with eagerness, and even the long-bearded Hall himself, although he had never before engaged in such amusement, was induced to swell the number of dancers. Thus the hours sped away. Before leaving the ship, however, the company from shore joined in singing several Danish church hymns—a practice which might not result in evil among more civilized dancers.

But the time had come for leaving this delightful shore. Many friendships had been formed and many eyes were moistened at the thought of separation. The stern duties of exploration, however, demanded their onward march, and on July 24th, amid a large number of natives and Europeans, after many hand-shakings and exchanges of presents, the noble thirty repaired to their ships, and were soon stemming the tide up Baffin's Bay.

The travelers turned their course toward Northumberland Inlet. The first day forcibly reminded them of the dangers to which they were subjected, as the sky became overcast and quite a gale blew for awhile, but the worst of its fury passed over. Icebergs of every description were floating about, many of which were of the most fantastic and beautiful design. The third day witnessed a heavy snowstorm. However, when the clouds permitted the sun's rays to reach the earth, the effect was frequently the most delightful and startling. It will be remembered that the explorers were now in that portion of our globe where there is perpetual day for a large portion of the year, during which time the sun never disappears below the horizon. Mr. Hall graphically describes the day that noted old Sol's non-inclination to go out of sight, when the entire crew stood upon the deck at midnight and watched him descend to

the horizon and then slowly begin his march up the rugged mountains of the skies. The peculiar laws of reflection and refraction were most beautifully verified and illustrated. In our works on physics we study theories, and demonstrate what might come to pass under certain circumstances, little realizing, however, that these circumstances really exist, and that the results are beheld by people on some point of our sphere. The crews of the *Rescue* and *George Henry* actually beheld mountains apparently high up in the sky, which were from seventy-five to one hundred miles away. The sun's rays were so

refracted as to pick up these mountains, which would otherwise have been invisible at such a great distance, because of the rotundity of the earth, and plant them high above the horizon, where the awe-stricken sight-seers could gaze upon their monstrous forms at their leisure.

Nor was this the only phenomenon. By the same laws of refraction the moon at first sight



A black and white portrait engraving of Captain Sidney O. Buddington. He is a middle-aged man with a full, dark beard and mustache. He has receding hair and is wearing a dark, high-collared coat over a white shirt with a dark bow tie. The style is characteristic of late 19th-century portraiture.

CAPT. SIDNEY O. BUDDINGTON.

appeared all broken and distorted; islands clothed with verdure were seen in the heavens; inverted icebergs, like huge pyramids standing upon the apex, and even the vast sea itself, had apparently shifted its position to the clouds, while the most gorgeous colors bedecked the entire assemblage of earthly visitors, like an oriental fairy-land plumed out in its most extravagant array.

One morning the crew of the *George Henry* were surprised to hear the cry, "Ship-a-hoy!" from the watch. The strange vessel soon came within shouting distance, when the following conversation took place:

"Who are you?" cried Capt. Buddington.

"Crew from the Ansell Gibbs, of New Bedford," was the reply.

"Where from, and bound to what port," cried the Captain.

"From the north and bound to the south," came the answer.

"You are runaways, are you not?" thundered Capt. B.

"Yes, we are," was the answer.

"Why did you leave your ship?"

"Bad treatment on board and nothing to eat."

"Do you know how far it is to the United States?" asked the captain.

"About 1500 miles, we have reckoned," said the spokesman.

"Are you all old sailors?" was asked.

"No; only two of us have ever been to sea before," was the reply.

In vain did Capt. Buddington and Mr. Hall expostulate with them about their hazardous undertaking. They were bound to continue their voyage. Storms and icebergs might frighten others, but these American boys were fearfully homesick, and notwithstanding the prospects of starvation, of freezing, of being swallowed by some sea monster, they again took their departure, and were soon lost to view.

It is not possible to follow these reckless seamen in their little boat, through the many dreary days and horrible experiences of their course. Suffice it to say that only three out of the seven ever reached their native land. One of these, Thos. Sullivan, gave an account of their misfortunes and desperate straits. Driven hither and thither, without food and proper clothing, the remaining three were finally picked up by Esquimaux, and went back home. While wrecked upon an unknown island one of their number died, when the rest cut the flesh from his bones and ate it. Nor was this the most horrible circumstance. An attempt was made to murder another of the crew. A terrible fight ensued, in which one of the would-be murderers was killed. Their story formed a fitting termination to such a scene of insubordination and bad discipline.

The long-sought bay was soon approached, and preparations made to land. As soon as the George Henry was sighted from the harbor, five whalers were sent out from the Black Eagle, which was lying at anchor

here, and soon our explorers were being towed in by these smaller boats. The Rescue had landed previously, and now sent one of her whaling boats to assist in bringing in the George Henry.

The merry laughter, hearty hand-shaking, and boisterous shouts from the sailors as they met each other in this far-off land, evinced the genuine joy of such a meeting. Capt. Allen, of the Black Eagle, with two of his mates, soon rowed out to the incoming vessel, and right cordially were our heroes welcomed to the harbor of Grinnell Bay. About twelve o'clock on the 8th day of August, the George Henry cast anchor safely in the harbor.

It must not be forgotten that whaling vessels make trips to this far off sea, although brave and skillful must be the navigator who is willing to risk his life in such an undertaking. The Black Eagle was out for this purpose. Its crew was not large, but fearless of anything connected with a seafaring life. Then the sports of these passages were more numerous than would be expected. Acquaintances were always formed with Esquimaux, which proved a source of vast enjoyment to the wild and reckless crews of a whaling vessel.

Upon the occasion of the George Henry's arrival, scores of good-natured natives, men and women, came aboard, manifesting the most intense interest in the new comers; but never touching aught which belonged to the vessel. The Esquimaux, according to Hall, are scrupulously honest—not so scrupulously clean. A little circumstance occurred at this time, which will serve to illustrate the lack of this latter quality.

Kudlago's little girl, hearing of her father's death, came aboard to inquire concerning it. Kudlago had thought a great deal of his little daughter, and had filled a chest with various bright colored articles as presents to her and his wife. Accordingly, when the little one came aboard, Mr. Hall and Capt. B. concluded they would dress her in American costume. But the task of transforming this daughter of the forest involved almost as much labor as does an ordinary transformation of toilet among American girls farther south. *Her hair had never been combed*—a marvelous entanglement and mixture of moss, seal, and reindeer hair all matted together with compounds of unknown nature. Nor

was her head the only portion which needed attention. Layer after layer of northern mother earth had accumulated upon her face and hands, which required much soap to remove. But when, after due scrubbing and combing, the original was arrived at, no more beautifnl child could have been found between the 25th and 49th degrees of north latitude. Her cheeks were as red as roses, her lips of the most exquisite outline, and her eyes of "heaven's own hue." Nor had the outer covering of dirt apparently injured her health. She was as robust and full of life as the buxom maiden on the plains of Illinois, or the mountains of the East. Kimmiloo was the name of this romantic maiden.

When Kimmiloo came out of the cabin all gaudily attired in a red dress, brass rings, fancifully arranged frills and furbelows, her Esquimaux relations and friends laughed, shouted, and jumped about, greatly delighted with the change of costume. A very interesting account is given of a blind Esquimaux called Blind George by the sailors, and *Pan-loo-yer* by the natives. He claimed to be an expert with the needle, and indeed, so proved himself. Mr. Hall gave him a garment to mend and watched his manœuvres. George took the needle and put the end containing the eye between his teeth. He then put the thread upon the tip of his tongue. With his tongue he brought the end of the thread in contact with the needle until directly it struck the eye, and the needle was threaded! Verily, this is a use of the tongue never known before.

These Esquimaux showed great eagerness to become acquainted with American manners and language. And what is strange, yet nearly always the case, words of profanity and obscenity were invariably first learned. When one of them could not pick up a little ball of mercury that was dancing around, he said it had the devil in it. Perhaps this is to be accounted for by the fact that these words were heard more than any others among the sailors, but it seems a coincidence worthy of note that the same is true in the case of every foreigner in first acquiring the English tongue.

CHAPTER LXII.

CHAPPELL INLET — A GRIEF-STRICKEN DAUGHTER — A DESERTED VILLAGE — A DELICACY — WRECK OF THE RESCUE — THE GEORGIANA SAVED — CAPT. PARKER — TOOKOOLITO — A GENEROUS OFFER — A SUDDEN CHANGE — A STRANGE CUSTOM — IN A STARVING CONDITION — ROBBED BY DOGS — HALL TAKES UP HIS RESIDENCE WITH INNUITS.

On the 17th the ship entered Nu-gum-mi-uke Bay, which was found to be a good harbor, and where she remained until the 21st. During their stay the crew engaged in whaling, and Mr. Hall devoted his attention to the natives, and to visiting some of the islands which abounded in the bay. Leaving this bay the captain shaped his course for Frobisher Straits, which were reached the following day, and the anchor was dropped in a beautiful little inlet which was named after Richard H. Chappell, of New London, Conn. On going ashore it was found that they were separated from the waters just left by a strip of land less than a mile in width, and which was so low that high tides would probably cover it. The isthmus was sandy in portions, while in others it was covered with rock and shale. From a ridge of rocks named Morgan's Hill, a fine view of the beautiful strait was enjoyed. Facing the party was the celebrated Strait of Frobisher, and beyond it in the distance, Meta Incognita, named by Queen Elizabeth, and sailed upon by Frobisher two hundred and eighty-two years previously.

Although forty miles distant, the land on the opposite side of the straits was clearly seen, and had the appearance of being topped with a long line of ice or snow. When this land was visited several months subsequently, it was found to be an enormous glacier, which was named after Henry Grinnell. To the west the mountains seemed to unite with the narrow strip, and a week later it was learned that the water was a

bay, and not a strait. Many specimens of fossils were found on the narrow strip, from which selections were made and taken on board.

The next morning the Rescue was again on her way toward the George Henry, having a narrow escape from some rocks on the way out of the bay. During the afternoon family boats of the natives, filled with women and men, approached, and were taken on deck. Among the visitors was Kudlago's eldest daughter, a beautiful young woman, named Kok-er-zhun. She learned of her father's death for the first time upon going on board, and was grief-stricken.

On Friday, Aug. 24th, a native drew for Mr. Hall a chart of Northumberland Inlet, Bear Sound, and adjacent lands, and signified a willingness to accompany the expedition next year. On the following day natives who had visited the land gave assurance that Frobisher Strait is an inlet or bay, each one declaring that there was no other water communication to Fox's Channel except through Hudson's Strait. In examining with the natives the charts of that time, many inaccuracies were found, and it was discovered that the Esquimaux possessed a wonderful knowledge of their country; in fact, any of them can delineate to the minutest detail, any portion of the country once visited by them, and their memory is remarkably good; so that from the information imparted by them Hall arrived at the conclusion that no passage existed in the direction of Frobisher Strait.

On the morning of the 30th a trip was made to a large island, on which was found a deserted Esquimaux settlement of fifty huts. At the time the settlement was visited the Esquimaux had abandoned the plan of building huts, and lived entirely in snow houses. Another curiosity noticed here was a dog-sledge, used by the natives in their winter excursions. It was ten feet in length, the runners of one and a half inch plank, and shod with the jaw bone of the whale. The width was thirty inches, and the cross bars fastened by strings of whalebone. The Esquimaux are very fond of the skin of the Greenland whale, which they eat raw, as they do also the meat of the whale, and which travelers in that region consider a good practice—at least for the better preservation of their health. The whale meat is described as being “white and delicious

as the breast of a Thanksgiving turkey." The Esquimaux masticate it by getting vast pieces into their distended mouths, and then, boa constrictor-like, first lubricate them, and so swallow them quite whole. On the 5th of September a large piece of what was supposed to be iron ore, weighing nineteen pounds, was found on Lookout Island, and was afterward proved to be a relic of Frobisher's Expedition.

During the month of September, up to the latter part, nothing of interest occurred to the expedition. The time was passed principally in making short trips from the ship in various directions, in the course of which those engaged in them on several occasions met with minor accidents and mishaps. Quite a number of natives visited Mr. Hall, and during their stay he gained from them much valuable information for future use.

On the 26th light winds commenced to blow from the north-east, steadily increasing in force until the following day, when they assumed the proportions of a gale, being accompanied by snow. At 8 o'clock in the evening all the anchors were let go. An hour later the Rescue commenced dragging her anchors, and soon after the Georgiana, commanded by Capt. Tyson, was in the same predicament. The gale soon increased to a hurricane, and by midnight the two ships named were drifting toward the rocks. The Georgiana worried around a point on the land and got into comparatively smooth water, although she was at last grounded. The crew, expecting she would go to pieces, deserted her and went on the island. The Rescue was less fortunate, and drifted helplessly toward the rocks, where she landed on her broadsides. The expedition boat upon which Mr. Hall depended so much, was also torn from her moorings, and dashed to pieces. When morning dawned both vessels were seen pounding against the breakers, and assistance was immediately sent them. Capt. Tyson and his crew were removed in safety to the George Henry. The storm continued with unabated fury throughout the day, but the following morning the gale abated, and a party went ashore. The Rescue was found to be a total wreck, and had to be left to go to pieces. The Georgiana was found to be perfectly tight and comparatively uninjured, and her crew again took possession of her, towed

her off the rocks, and once more anchored her in deep water. The escape of the George Henry was almost miraculous, but she did not long survive her partner in adversity. She was wrecked July 16, 1863, on one of the lower Savage Islands in Hudson's Strait, about one hundred miles further south than Rescue Harbor. The Georgiana made good her defects, and on October 1st set sail for Northumberland Inlet to winter.

During the months of October and November the time passed rather monotonously, and during that time Mr. Hall devoted most of his time to observations of the display of aurora, which were beautiful beyond description. On the 13th of October the expedition was startled by an unexpected arrival. A steamer and a sailing vessel came up from the sea, and anchored on the opposite side of Field Bay. The discovery was soon made that the strangers were the famous Capt. Parker, of the True Love, and his son, commanding the steamship Lady Celia. They had made the trip from Cornelius Grinnell's Bay in less than a day. A visit to the strangers was immediately planned and executed. When seen by Mr. Hall, Capt. Parker was sixty-nine years old, and had been navigating the Arctic regions forty-five years. His ship at that time was a hundred years old, was built in Philadelphia, Pa., and had taken part in many of the searching expeditions. Capt. Parker examined the plans of the expedition, in which he took a deep interest, and promised an additional boat, which was much needed in the transportation of supplies, but which promise, unfortunately, was never fulfilled, as the ships were driven to sea by a gale a few days later, and did not return.

Mr. Hall relates that on November 2 he was surprised by a visit of an Esquimaux lady, dressed in European habiliments and speaking fluently the English language. She was Tookoolito, who, with her husband Ebierbing, had spent twenty months in England, where she had made the most of her advantages. Her husband was less accustomed to the English tongue, but could carry on a conversation in that language. A visit to their home a few days later showed a happy state of affairs. The tent was as comfortable as the surroundings could make it, and Tookoolito was engaged in knitting socks for her husband. Not only this, but she

taught all who wanted to learn it the same occupation, and had succeeded in inaugurating quite a number of useful European habits and customs among her neighbors. She complained that many of the whalers were bad men, and contaminated the natives. She complained in particular of the Americans, who swore more and worse than their English brethren.

While on shore for water one day in the latter part of October, Mr. Hall was initiated into the mysteries of Esquimaux worship. Seeing an excited crowd gathered around a man who had them completely under his control, and made them obey his every word and gesture, he was informed that this important personage was an angeko, or wizard. Though young he seemed to have the unbounded confidence of the natives, upon whose credulity and ignorance he lived at his ease. He carried on his ceremonies in a tent, into which Mr. Hall was taken to behold the exhibition, and at the close this great man insisted upon giving him one of his wives; to which proposition the women assented, each one trying to make herself as agreeable to the stranger as possible.

On the 19th of November the ice from the head of the bay commenced bearing down on the ship, and by the 6th of the following month she was secured in the solid ice for the winter, and the boats were dismantled, not to be used again for about nine months.

The Esquimaux lamp is one of the institutions peculiar to this region. It is made of stone and is supported on three legs. Without it they could not exist. Their homes are lighted and warmed by it; it melts ice or snow for their drinks, and by its heat they dry their clothing, mittens, boots, and stockings. As oil seal blubber is used, and forms a very good substitute for petroleum.

December came in with a calm which continued four days. On the 8th the thermometer stood at zero, and a day later, 15° below that point. The ice was solid around the ship in her winter quarters, and the Esquimaux visited her in large numbers daily, often remaining on board over night and sleeping in the cabin. They went on various errands—some merely as visitors, some to see what they could secure in the way of presents, and others to do some trading. The last mentioned brought

with them skins which they exchanged for knives and other articles. The dresses made by the Innuit women were of a superior quality in every respect, and found a ready sale on board.

The temperature changed very suddenly as the month drew to a close. On the 19th the thermometer was 20° below zero, and the barometer 30.175, yet the weather was calm and seemed no colder than at the commencement of the season, when the thermometer stood at 32° . On the 20th the thermometer had risen to 5° below zero early in the morning, and kept rising until night, when it indicated 14° above, with a gale blowing and a general breaking up of the ice in Field Bay, and the harbor in which the ship was laid up. On the 21st the thermometer stood 21° , and the bay was almost clear of ice. Considerable rain fell during the night, and next morning the thermometer was $32\frac{1}{2}^{\circ}$, or a half degree above the freezing point. This placed the natives in a sad plight. It demolished their snow houses, and rendered them homeless. The rain continued on the 22d, preventing the natives from seal fishing, and causing much distress among them. What food could be spared from the ship was distributed among them, and cracklings, which had been taken along as dog feed, were considered a great delicacy. On the 30th of December the thermometer had again retired to zero, and six days later was 28° below that point. The bay and harbor were again covered with ice, and the men resumed their seal fishing.

About this time it was discovered that the natives treat their friends with the utmost neglect when they are overtaken by sickness. When death approaches, a tomb is erected for the victim, to which he or she is carried, placed within, the entrance closed with blocks of snow and ice, and the person is left in this living tomb to die alone, uncared for. They believe that should any be present at the death, they must discard the clothes then worn, and never wear them again. The funeral service is very simple. The corpse is carried over the shoulder, much as a sportsman carries his gun, to its final resting place, where a hole is dug in the snow and ice, in which it is deposited, covered up, and left there.

Having determined upon an exploration trip to Cornelius Grinnell Bay, Mr. Hall, in company with Ebierbing, Tookoolito, and Koodloo,

started on Thursday, Jan. 10, by sledge and dogs, with provisions for several days. When they reached the shore they started north, and late in the afternoon neared the frozen waters of the ocean, on the margin of which the cliffs were almost perpendicular, making it necessary for the party to lower the sledge down to the ice below. The journey was continued until 5 P. M., when the party halted, erected an ice hut, and camped for the night. Every article on the sledge was taken in, and the entrance closed, the dogs being left outside. During each night in these huts the clothing of the occupants is hung over the lamp for drying, and carefully attended to by the women, who also make any necessary repairs. This was Mr. Hall's first night in one of these huts, and he records that he slept as comfortably as he could wish.

The journey was resumed in the morning. The course was due north, but owing to the innumerable hummocks in the ice it was not direct, and the party only made five miles during the day. It was expected that the journey would be made in one day, but the obstacles were so great that the second night found them far away from their destination. To add to the complications a storm came up, and they had just secured shelter when it burst upon them in all its fury, in their ice abode on the frozen sea. It continued all night long, and on the third morning of their journey they found it impossible to proceed. In the afternoon it was discovered that the ice was breaking, and the water made its appearance not more than ten rods from them. They became seriously alarmed, and consulted as to whether they should attempt to reach the land, which was three miles distant, or remain in their quarters and take the chance of being carried out to sea. They decided upon the latter course, and eagerly awaited the coming of another day. The gale abated about 10 P. M., and in the morning the weather was favorable. Proceeding on their way, they had every difficulty to contend with. The ice had given away in every direction. The snow was very deep and treacherous, and it was with great difficulty that the sledge could be moved so as to guard it against falling into some snow-covered ice-crack. The dogs also were in a starving condition. Each member of the party took the lead by turns, to guard against the dangers which beset them,

and to find a track through the hummocks which met them on all sides. By 2 P. M. the entire party were in such an exhausted condition that they were compelled to halt and partake of their now very slender stock of provisions. After this they proceeded with renewed vigor, reaching the shore ice in safety, and in a short time they were alongside of Ugarng's *igloo* (ice hut), built on the southwest side of Rogers' Island, overlooking Cornelius Grinnell Bay.

On the following day, Jan. 15, the explorations commenced. Rabbit tracks were discovered on the hills, and in the distance were seen the prominent headlands noticed on the first arrival of the ship. In the meantime the provisions gave out, and the party found themselves without food or light, with the thermometer 25° below zero. The natives met with no success in hunting or seal fishing, but brought to the hut with them some black skin and *kuang*, which they had obtained from a *cache* made the previous fall by the natives, when the ship was in the bay. At noon next day a heavy snowstorm set in, which continued nearly four days, confining the party to the hut, and compelling them to live on raw frozen black skin, *kuang*, and seal.

On Sunday, the 20th, they were in a sad state from actual want of food. The weather continued so forbidding that nothing could be obtained by hunting. At 8 o'clock in the morning, Mr. Hall and Kood-loo, one of his native companions, started to return to the ship with a sledge, and twelve nearly starved dogs. A speedy trip was anticipated, but the difficulties encountered were so great that Ebierbing followed them on snow shoes, and taking his place, sent Mr. Hall back to the huts to await their return. The supply of food was exhausted without any apparent prospect of obtaining a supply. Christmas eve found the party with nothing left but a piece of black skin, one and a quarter inch wide, two inches long, and three-quarters of an inch thick. During the night one of the natives came to the hut with some choice morsels cut from a seal which he had just caught, but he had no sooner entered than a starving dog which had been allowed to sleep in the hut over night, sprang at the meat and ate a fair share of it. Before the party recovered from their surprise, the remaining hungry dogs made a

rush from the outside and devoured the remainder. The next morning Ebierbing arrived from the ship with supplies, and a seal weighing at least two hundred pounds, thereby raising the siege of starvation by supplying the wants of all. A letter from one of the officers of the ship stated that the exploring party had been given up for lost in the great storm which they encountered on their journey.

In speaking of the Innuit people, Mr. Hall says they are noted chiefly for their thoughtlessness and improvidence. When they have an abundant supply of food they devour it all as fast as they can without considering that on the day following they may be in absolute want, and no course of reasoning can induce them to change in this respect.

February 16 Mr. Hall once more started on an exploring expedition, arriving the same afternoon at Clark's Harbor, and proceeding at once to Allen's Island, where he remained two days at Ugarng's *igloo*, curiously watching the various efforts made to sustain and enjoy life by the singular people of the north. He spent forty-two nights in an igloo, living with the natives most of their time on their food according to their own customs, and said he had no regrets in looking back upon his experience, but on the contrary, enjoyed his life so spent as well as he did under the most favorable circumstances. On the 21st he bade adieu to his Innuit friends and started on his return to the ship, accompanied by Ebierbing, Ugarng and Kunniu, taking with them the sledge and dogs. The journey was devoid of accident or excitement, and the party reached the ship on the evening of the same day.

A number of the natives had built igloos on the ice in the vicinity of the ship, but at that time they were deserted for the fishing grounds at Frobisher Bay. When he visited the crew the next day, Mr. Hall found two of the men afflicted with scurvy, the legs of one of them from the knees down being as black as tar. Both of them were sent to Frobisher Bay to live with the natives in their igloos, in the hope that it would effect a cure.

CHAPTER LXIII.

A DEER KILLED BY DOGS — FROZEN TO DEATH — THE APPROACH OF SPRING — BAYARD TAYLOR PASS — A NATIVE HISTORIAN — THE BREEDING PLACE OF THE DEER — THE “DREADED LAND” — SUBSISTENCE IN ARCTIC REGIONS — AN UNSAFE BOAT — AN IMPORTANT JOURNEY POSTPONED.

One morning early in March one of the men reported reindeer in sight upon the ice. Koojesse was armed with a rifle, and sent in pursuit. He succeeded in getting a shot, but missed. This roused the dogs and they immediately gave chase, in spite of all efforts to restrain them. A fine Greenland animal soon took the lead, and maintained it. Soon all were lost to sight and nothing further was thought of the matter until the dog returned to the ship about mid-day, covered with blood. His actions led a number of the men to follow him on the ice, and he led them to a spot where they found a dead deer, with its jugular and wind-pipe neatly cut by the fangs of the dog, a feat never known to have been accomplished by a dog before.

On the 17th of March John Brown, one of the scurvy patients, determined to return to the ship with some natives who were about to make the journey, and started with them. On the way they were compelled to stop and *cache* some of their supplies, and, becoming impatient over the delay, Brown decided to proceed alone. No amount of reasoning or persuasion would make him desist, and with a dog to guide him, he started on his journey. The same night the natives arrived at the ship and retired. The next morning Brown was missed, and parties were at once sent out in search of him. He was not found until late in the evening, when his frozen body was discovered at the foot of an iceberg seventeen miles from the ship.

Nothing especially worthy of note occurred until March 28, when

Bruce, the companion of Brown, came very near meeting a similar fate. He was still afflicted with scurvy, and had been again sent to an Innuit settlement. On the morning of the day mentioned he determined upon returning to the ship. He was accompanied by an Innuit woman, and had it not been for her strenuous exertions he would certainly have lost his life. On the same day Mate Rogers started for the whaling depot at Frobisher Bay, taking with him such articles as were required for spring operations, and a sledge and dogs, driven by Koojesse. The journey was made without difficulty until noon, when a gale, accompanied by thick-falling snow, set in, and they were compelled to retrace their steps. After battling the storm for ten hours they reached the goal, more dead than alive.

About this time there were unmistakable evidences of the approach of spring, and on April 8 the cooking apparatus and other materials were moved up from their winter quarters below, and four days later the weather was described as being so "gloriously fine" that Capt. Hall made a trip up Buddington Mount, which was described as very dangerous on account of the steepness of the incline, and its hard, snow-covered sides. Three days later a long tramp was taken round the head of Field Bay, for triangulating and making observations, and on April 16 Capt. Hall made his first lunar observation. Four days afterward the snow embankment around the ship was removed, and the crew commenced putting her in complete order for service.

On the morning of Monday, April 22, Capt. Hall started upon his first trip into Frobisher Bay. The course from the ship was westerly to the other side of Field Bay, from whence they went over a mountain pass which was named after Bayard Taylor. After passing through a gorge they arrived at a small inlet leading up from an arm of Countess of Warwick Sound. After traversing the inlet a very short distance they came to an abrupt turn in the mountain, and caught sight of Frobisher Bay, and the mountains of Kingait beyond. Proceeding to one of the islands they remained with an Innuit family all night. Next morning Capt. Hall ascended to the summit of a mountain close by, from whence he had a fine view of the bay, but was disappointed in discover-

ing that the ice had broken up on its surface, which would prevent him from making his contemplated sledge-journey to the westward. He also saw from his pinnacle Resolution Island and Meta Incognita. Many small pieces of limestone were found on top of the mountain. Descending he again passed the night in an Innuit igloo, and next morning started for another village. Taking a course over the hilly center of the island he arrived at his destination after walking about three miles. Two days were spent here taking observations, after which the trip was resumed. The breaking up and absence of sea ice caused the party to encounter many difficulties in making their way along the shore. As they traveled forward, the mountains of Kingaite loomed up in magnificent grandeur, and the explorer was struck with the idea that more than land existed there; and in truth, it was solid ice, which the natives said had never been known to change.

About dark they reached the south point of the island of Nonyain, where they expected to find an Innuit village, but were disappointed, and were compelled to construct an igloo out of a snowbank, in which they lodged for the night, though not without an intruder. The tide poured in upon them without ceremony, but retired without inflicting serious damage. In that region the rise of the tide at its full is thirty feet. On Saturday, April 24, the party started on the return journey, and on the following Monday they arrived safely on board the ship, after an absence of eight days. Immediately after arriving on board, Capt. Hall had an attack of snow-blindness, which continued a few days. On the last day of April the ice-fetters were stricken from the ship, and she floated two feet higher in the water, having become so much lighter through the consumption of stores since the period of freezing in.

One day early in May, Capt. Hall went ashore at Cooper's Island, in Rescue Harbor, to talk with an Innuit woman who was acquainted with nearly a hundred years of the traditions of her race. From her he learned that upon Nionutelik Island she had seen bricks and coal, and pieces of timber of various sizes, and that she had often heard from old Innuits that, many years before, ships had landed there with a great number of people; that when a little girl she had heard of these people killing

several Innuits and taking away two Innuit women who were never again heard of, and that they came every year; first two, then three, and then a great many ships. She also told of five white men who were captured by the Innuit people at the time of the appearance of the ships a great many years ago; that these men wintered on shore; that they lived among the Innuits; that they afterward built a large boat, with mast and sails; that they endeavored to get away, and that they finally succeeded in doing so after much trouble, and were never again heard of.



INUIT WOMAN'S HEAD-DRESS.

As all this was located upon the island upon which Frobisher landed it was compared with written history, and they were found to correspond, which determined Hall to visit Nionutelik, the island referred to, for the purpose of gaining further information.

Before leaving for the Frobisher waters, an examination trip was made to the head of Field Bay. Traveling was impeded, and seven hours were consumed in reaching the shore. From the top of a small rocky hill was discovered to the west a long and narrow lakelet, extending in a northerly direction to the base of Alden Mountain. After resuming the journey, a beautiful grassy plain was reached, which was quite destitute of snow, and surrounded by rugged, somber, rocky mountains, making it appear as an oasis in

the great desert of ice and snow. Running northwest from the plain near Alden Mountain, was another plain extending in every direction as far as the eye could reach. This led the explorer to the belief that at that time Arctic navigators knew very little of the interior of the country, as they rarely saw and explored aught but the coasts. Judging from information afterward obtained, these plains are the breeding places of the deer. After traveling about twenty-five miles the explorer arrived on shipboard again at 3 o'clock the following morning.

On the 27th of May, Capt. Hall, accompanied by a number of natives, started on the long-expected expedition, but before they had gone far they were compelled to return to the ship, as it was found impossible to make the journey by sledge. It was the intention, however, to spend a day or two on the islands of Opungnewing and Nionutelik before making the return trip; but this also had to be abandoned in the face of a storm, and the party hurried back as fast as they could. Soon after arriving on board again, a party of Sekoselar Innuits arrived, and imparted some valuable information concerning white people who had in years gone by visited their country.

Early in June the journey to the "Dreaded Land," as it is called by the Esquimaux, was commenced again by sledge. The progress was very slow at first. The direction first taken was toward Dillon Mountain, latitude $62^{\circ} 32'$ north, at the east end of Fox's Land, an island on the east side of Bear Sound and Lupton Channel, twelve miles in width, its center being in latitude $62^{\circ} 29'$ north, longitude $64^{\circ} 28'$ west. The hummocks caused the party to change their course to due south toward Lupton Channel. Bad weather compelled them to encamp on an island which was named Sylvia, its highest point being five hundred feet above the sea. From the elevation could be seen the open water of Lupton's Channel, which the natives say never freezes over, in consequence of the swiftly running tides. On the 7th of June they left the island, and the same afternoon arrived at the base of Jones' Tower, latitude $62^{\circ} 33'$ north, longitude $64^{\circ} 34'$ west. From the top of this mountain the view was extensive, but Frobisher Bay could not be seen, although it was not thought to be distant more than seven miles.

The following morning the journey was resumed, and the shore of the "dreaded land" was found to present many interesting features, on account of its newness and associations. About six miles from Jones' Tower they reached Cape Daly, the termination of a neck of land distinguished by a remarkable gap in its ridge. Pushing forward they reached Cape Hayes—the most northerly point of Hudson's Island, where they again prospected. At this time Hall's Island was less than two miles distant, but it was impossible to reach it on account of the

rugged ice with which M'Clintock Channel was firmly packed. At Cape Hayes were found circles of stones, which had been placed there years before by the Innuits who formerly inhabited this now forsaken land. The next day the party pursued its journey through Dr. Kane's Channel, which connects Frobisher Bay and Field Bay. Seals were very numerous in this locality, and bear tracks were also discovered. When they arrived at the point from whence it was expected to see the entrance to Frobisher Bay, there was great astonishment at discovering a short distance off, open water, with numerous icebergs drifting; a heavy sea rolling in and beating on the edge of the floe.

They had now neared the land; and when within half a mile of "Hall's smaller island" of Frobisher, Capt. Hall went on by himself. Bear tracks were seen on all sides, and other evidences presented themselves sufficient to show that that outcast region was one of plenty instead of barrenness. After a thorough inspection the party retraced their steps to the encampment, where they arrived safely a day later. From the mountain top in the rear of the camp bearings were taken of various prominent places. It was determined to set out on the return to the ship on Wednesday, June 12, but before doing so Capt. Hall visited the utmost extreme of land—the "North Foreland" of Frobisher. The channel between the islands was free from ice, save at its west end, and presented an animated picture of life, for seals and aquatic birds in great variety were sporting there. After a laborious walk he reached "North Foreland," the goal of his ambition in that trip. The view was enchanting. As far as the eye could reach, the sea was open. North Foreland presented a bold front. Its elevation was several hundred feet, and the mighty waves were dashing in quick succession against this rocky rampart. Nearly south of this point are three islets, the nearest being a quarter of a mile from the shore. The largest is a quarter of a mile long, and the others are very small. In every direction were seen traces of reindeer and rabbits. After remaining an hour on this interesting spot, taking bearings of distant objects, he returned to the encampment, where everything was found to be in readiness for their departure.

The start was made in the forenoon, and the route selected was the

one traveled by them three times before. A gale sprang up during the day, and fears were entertained that it would break up the ice. Great difficulty was experienced in erecting the tent, but it was accomplished at last, and the crevices were filled with moss in such a manner that it was almost impossible for the fine snow to enter. They were compelled to remain in the tent until Friday, the 14th, when the journey was resumed. They progressed very well until they struck out on a straight course for the ship, when they found the situation alarming. The ice was broken into every conceivable form and size, but it was their only chance, and they seized the opportunity. The distance was accomplished safely, though with fear and trembling, and they arrived at the ship on Saturday morning. As an evidence of what can be secured in the polar regions to sustain life, it may be interesting to state that during an absence of ten days the party obtained:

1 Polar bear.....	1,000 pounds.
1 ookgook (largest sized seal).....	1,500 "
9 seals.....	1,800 "
	<hr/>
Total.....	4,300 "

In addition to this they had an abundance of skin for clothing, and oil for fuel and light.

A few days were devoted to rest and making preparations for the long-desired visit to King William's Land. About this time another heavy gale swept across the bay for three days, but the ice remained firm, and the ship was uninjured. Word was received from the whaling depot that the officers and crew stationed there were quite well, though unsuccessful, and soon after Capt. Hall, accompanied by Koojesse, started to join them, arriving at the destination early next morning. After an exchange of greetings an examination of the shore was made, and everywhere along the beach fragments of limestone were found in abundance.

One of the principal objects of the visit to the depot was to make preparations for the departure to King William's Land, and to consult with Capt. B. respecting it. Great was the sorrow on both sides, when Capt. Hall was assured by his friend that the whaling boat promised him

for the expedition was in every respect inadequate for the work which it was proposed to impose upon it. He showed clearly that it could not carry the necessary quantity of provisions for the men required, which impressed the explorer with the belief that he would have to postpone his proposed expedition for a year, or until he could return to the States and procure a suitable boat.

The weather being fine, an expedition was planned for the exploration of the surrounding coast, made famous by Frobisher's voyages in the sixteenth century. The start was made with a young native, who, however, proved to be a hindrance. The journey was tedious in the extreme. The shore-ice was covered with soft snow, and a point of land not more than two and a half miles distant could only be reached by a walk of fifteen miles, after which a long circuit had to be made around some rocks. Nothing was accomplished on this trip, and the party returned to the depot.

Much of the time was devoted to duck hunting and egg gathering. A party of four succeeded in gathering six dozen eggs at one point in ten minutes. At another place they got sixteen dozen and five in twenty minutes. The ducks always replaced the eggs, which made the supply equal to the demand. Many birds were shot, but the swift tide prevented the hunters from securing the game. Ice bridges were found in abundance, and many of the islands in Bear Sound are united by these curious provisions of nature.

On June 29, Captains Hall and B. returned to the George Henry, and a few days later the Fourth of July was celebrated by a grand explosion of a rusty gun-barrel. At this time there was a fair prospect that the bay would soon be free from ice, and that the ship would get away to other quarters.



CHAPTER LXIV.

THE SHIP FREE—A SERIES OF ADVENTURES—IRON ISLAND—JONES' CAPE—CAPE STEVENS—FRESH WATERS—PEALE POINT—JORDAN'S RIVER—THE RETURN—COAL—COUNTESS OF WARWICK'S SOUND—HOMeward BOUND.

On July 17, 1861, the ship was once more free from the ice which had bound her for eight months, and swung her chains in Rescue Harbor. But it was only in a pool that she was free, for ice yet remained between the anchorage and the main bay. The greater portion of the crew were again at the whaling depot, when a boat was sent them, but they were meeting with no success. At this time the heat was very great, the mercury standing 95° in the sun, preventing work of all kinds, unless one was clad in the lightest garments. On the 27th the ice in the vicinity of the vessel began to move, and it was with great difficulty that the crew succeeded in keeping it from crushing the ship. A day later the men who had remained at the whaling depot were summoned to return to the ship. The return of the crew and breaking up of the ice were the signal for a departure to another place in search of whales.

On Tuesday, the 30th, the George Henry took her departure from the bay, leaving Capt. Hall to push his explorations as best he might. He took up his abode with Ebierbing, and was the only white man left in that locality. The next day it blew a gale, and the ship again sought shelter in the bay, where she remained for some time.

At this time Capt. Hall was busily engaged in the selection of a crew that should accompany him on his expedition. He succeeded in securing six good natives, and everything being ready for the start on Friday, Aug. 9, on that day he set out from the ship. That evening they reached the entrance to Lupton's Channel, and made their first encampment in a small cove on the southeast side of Bache's P-

ninsula, and opposite Ellis Island, where they found relics of former Innuit encampments. The voyage was continued the following morning. At Cape True a rest was taken for an examination of the deserted place. At that time there was no ice on Frobisher Bay, with the exception of a few bergs. The second encampment was at Cape Cracroft, latitude $62^{\circ} 41' 30''$ north, longitude $65^{\circ} 7'$ west. The next stopping place was at Oopungnewing Island, where the members of the party were very much annoyed by mosquitoes. On the 11th of August three of the crew were selected to accompany the explorers to Nionutelik, which was reached in safety, although rough weather was encountered. Search was made for fragments of brick and relics, but none were found. The journey was continued around the island, and at last the relic hunter was rewarded by finding pieces of sea coal which had been taken there by Frobisher in 1578. No other relics were found, and the parties returned to the encampment. The journey was resumed in the morning. The examination made of the surroundings was not thorough, as it was the intention to continue the journey at another time and in a more complete manner. However, a constant record was kept of distances run and courses steered, and landings were made as frequently as possible to take observations for latitude, longitude, and variations of the compass.

Iron Island, named so because of the resemblance of its rocks to oxidized iron, was found to be an interesting place. Innuit monumental marks were found; also an excellent piece of live oak timber, from some wreck.

Jones' Cape was selected as the next place of encampment. It is in latitude $62^{\circ} 55' 30''$ north, longitude $65^{\circ} 45'$ west. A snug harbor was found, and the natives received the parties kindly. Some remarkable monuments of stone were found here, one being about six feet high, and in the form of a cross. Capt. Hall declared Jones Cape to be one of the finest places he had seen in the north. Force's Sound is nearly surrounded by magnificent mountains, and is sheltered from winds and heavy seas by numerous islands. On Aug. 14 a mountain in the rear of the encampment was ascended, from the summit of which could be plainly

seen more than fifty miles of the Kingaite coast, the nearest point being distant about thirty miles. The peculiar variety of stone found upon Iron Island was also found there, and also limestone upon the summit, about a thousand feet above the sea level.

The expedition next pushed westerly across the east arm of the bay, but had to change its course on account of a heavy sea, and again landed on the island, near its center, after which it proceeded to the southeastern extreme of Barrow's Peninsula. The next point reached was Hamlin's Bay, which had to be crossed. The sixth encampment was made on Blanchard's Island, and the seventh at Tongue Cape, near the entrance of Waddell Bay. A native was here found who had seen pieces of iron, brick and coal in that locality, but who said they had been carried away years before when he was a boy. The expedition continued its course along the coast, closely examining its features, and noting down everything of importance which was seen. The land was bold and high, with much of the iron rust look about it. Scarcely any vegetation was to be seen. Numberless islands bordered the coast, and it looked as though a complete chain reached across the bay to Kingaite.

Cape Stevens was the eighth camping ground. On a mountain top close by were found shells and fossils, some of which were taken away. This particular mountain was described as being very grand and rugged. One side was perpendicular, and contained large caverns, with huge projecting rocks hanging over them.

Numerous small bergs were encountered during the next few days, which had been left high and dry on the rocks near the coast by the ebbing of the low spring tide. Capt. Hall went ashore on the north side of the island, "Frobisher's Farthest," from the summit of which the bay seemed to continue on between two headlands, one the termination of the ridge of mountains on the Kingaite, and the other the termination of the ridge running on the north side of Frobisher's Bay. The coast of Kingaite was in full view from the "Great Gateway" down to the "President's Seat," a distance of one hundred nautical miles. A line of islands—their number legion—shoot down from "Frobisher's Farthest" to the Kingaite,

The next morning, Aug. 23, an exploration of the hills was undertaken. Mountains near the coast on that side of the bay had disappeared, the land being comparatively low, and covered with verdure. When all the party had again gone on the boat and proceeded some distance further, they found themselves navigating in fresh waters. It was clear the river was of considerable size, or it could not throw out such a volume of fresh water to a considerable distance from its mouth against an incoming tide. After proceeding a short distance further it was found that the waters were alive with salmon. The reindeer also abounded in that region, and the members of the party had no trouble in feasting themselves upon all the delicacies of the season. The waters of the river were pure as crystal, and it was named Sylvia Grinnell River. For the first half mile from the sea proper it runs quietly. The next quarter of a mile it falls about fifteen feet, rushing rapidly over rocks. The next mile is on a level, when it again takes a fall of about ten feet to a fifth of a mile, after which its course is through low, level land. The banks for two miles are of boulders, thence, in some cases, boulders and grass. Two miles above the point where it enters the sea, on the east side, is the neck of a plain which grows wider and wider as it extends back. From the point where it was seen it looked as though it was very extensive. On the east side as far as could be seen there was a ridge of mountains. On the west side was a plain of a quarter to a half mile in width.

Thursday morning, Aug. 29, the party was again under headway in a due west course. An indentation of the coast, at the head of which was a grassy plain, was soon passed, and as Peale Point was approached it was found to be fringed with many islets. The Point consists of rugged rocks which attain a greater elevation than any other land at the head proper of Frobisher Bay. The beach was sandy, and contained large and remarkable time-worn boulders. In the afternoon they entered the channel, with Kingait on the right, and Bishop's Island on the left. The coast was steep, but in many places covered with grass and vegetation. The entrance is about half a mile wide, and after proceeding a quarter of a mile they reached a fine harbor not less than two and a

half miles in diameter, on the west side of which they encamped. Making his way to the crest of a high hill, Capt. Hall placed there the Stars and Stripes. This encampment was left the following afternoon, some articles being stored to be called for on the return. A landing was made on the northwest corner of Bishop's Island. From its top the whole head of Frobisher Bay, from Sylvia to Grinnell River on the northeast, to Aggoun on the west, was in view. The width was fourteen nautical miles. The termination is not by deep bays or fiords, but by slight indentations, the greatest not exceeding three miles. Bishop's Island was well covered with vegetation. The next day a point was reached from which it was definitely ascertained that Frobisher's Strait was a myth. The estuary of Jordan's River was finally reached. It was crossed, and an encampment made on the other side. From this point were visible long and wide plains, meadows of grass, smoothly sloping hills, and a range of mountains beyond, which, parting in one particular spot, formed, as it were, a natural gateway. At the left, across the river, was Silliman's Fossil Mount, a ridge of white, and behind it the unbroken front of a line of mountains extending northwesterly to the Great Gateway. On the northern side the mountains continued from this singular opening on by Frobisher Bay to the locality around Field Bay, far to the southwest and eastward. Jordan's River is not so large as the Sylvia Grinnell, but at certain seasons it must discharge large volumes of water. On account of its singular beauty the land at the head of Frobisher Bay was named "Greenwood's Land." On the opposite side of the river was discovered a mount of marine fossils in limestone, half a mile long and over a hundred feet high.

On the morning of Sept. 6 the return journey was commenced. Two days later it was evident that winter had again commenced. There was a severe snowstorm in the morning and ice at night. On the 10th a journey over the mountains westward was undertaken, though nothing was accomplished. Next day a start was made for the islands, and a landing was made on Bishop's Island. The view from there embraced the whole coast which terminates Frobisher Bay. On the 20th there was some excitement when one of the Innuits cried out from



OPIKURID OF NORTHERN SEAL

the shore that he had discovered gold, and instantly a rush was made for the spot, when it was discovered that the alleged article was spurious. Further along on the island was found a trench in the rock which was one hundred and ten feet in length, running from the surface to a depth of twenty-five feet at the water's edge. The Innuits said that a ship had been built there by the white men.

On top of the island was found the ruins of a house, built of stone, and cemented with lime. It was about twelve feet in diameter, and thickly coated with moss. A few feet from it was a sort of stone breastwork, such as the natives erect for shelter when hunting, and also a pile of stones, which looked as though it might have been made by Frobisher's men to cover some memorial left by them when trying to escape in their ship.

Leaving the island the course was next laid to the cape of land called Tikkoon. Landing there, one of the Innuits attracted the party to where he was standing, by loud cries. On arriving on the spot there was found still another relic of the Frobisher Expedition—of iron, and time-eaten, with ragged teeth. The piece weighed from fifteen to twenty pounds and was on the top of a granite rock, just within reach of high tide at full and change of the moon. The iron stain was in the rock; otherwise its top was cleanly washed.

The next point visited was Cape Ood-loo-ong, where many relics of Innuits were found, and which possessed magnificent scenery. Next day a landing was made at Ek-ke-le-zhun, where more coal was found, and where a black stone resembling coal was also found.

A snowstorm detained the party on Nionutelik Island, which enabled Capt. Hall to extend his investigations still farther. East of the spot where he discovered some coal several months before, he discovered another deposit, which was nearly overgrown with grasses, shrubs, and mosses. Its location and surroundings led him to believe that this must have been the landing place of Frobisher in 1578.

A start from the island was made on Sept. 25, the course being direct to Kodlunam Island. This second visit resulted in the discovery of another piece of iron, semi-spherical in shape, and weighing twenty

pounds. Fragments of tile and numerous other relics, indicating that civilized men had visited it, were also found. Cape True was next visited, and then the party started for the locality of the ship. On the evening of the 27th they arrived near Parker's Bay, where they heard the sound of firearms. It was cold, and night was approaching, but they pressed on to ascertain if the ship still remained. The point of land at the entrance to the harbor was rounded, and the hull of the George Henry loomed up before them. All received a joyful welcome, and were soon on board recounting their adventures to the officers and men, who had given them up for lost.

Much of the time after arriving at the ship was spent in visiting the homes of the Innuits on shore, and gaining what information could be obtained concerning the white men who centuries before had visited that region. The result of this information was a determination to make another trip to the places recently visited, and accompanied by five Innuits, Capt. Hall started for the Countess of Warwick's Sound on the 7th of October. The trip was nearly a failure. The season was too far advanced for boat excursions; snow storms, and cold and windy weather, met them each day. The Innuits were willing to proceed, but plainly intimated that it would not do to go far; so the party returned to the ship, where they arrived after an absence of four days.

All now wished to commence the voyage home. Ice had begun to form, and it was felt that the time for departure had arrived. The captain of the whaler had determined to leave on the 20th of October, and all had made up their minds accordingly. While waiting for the day of departure Capt. Hall visited a high point near Bayard Taylor Pass, in order to enable him to complete the trigonometrical survey which he had commenced. From the elevation he discovered that solid ice at the entrance to the bay held the ship a prisoner there. Upon the return to the ship her captain was informed of the discovery of pack ice in Davis' Strait. It was soon after announced that the winter must be spent in the polar regions. The bay commenced freezing over, and on Oct. 25, instead of being homeward bound, the ship was in ice seven inches thick and rapidly increasing, causing immediate preparations to go

into winter quarters. On Nov. 23 the Innuits commenced to build their winter houses.

When it was fairly decided that the George Henry would remain all winter in the ice, Capt. Hall declared his intention of making sledge journey up Frobisher Bay, for the purpose of effecting a complete exploration of every bay and inlet in those waters, and also of investigating still more closely the matters connected with the Countess of Warwick's Sound, and on Dec. 15 he started for Jones' Cape, accompanied by two Innuits. No new discoveries were made, and after an absence of four days they again arrived at the ship.

Shortness of provisions caused the ship's company to divide themselves among the Innuits and try their mode of living. The privations of Innuit life were too severe for them, and they now and then returned to the ship. Indeed, the experience of the men was anything but pleasant, and it often looked as though they would die of starvation.

The exploring sledge trip up Frobisher's Bay was renewed on the 1st of April, the party consisting of Capt. Hall, four of the ship's company, and four Innuits. They first visited Oopungnewing, but nothing new was discovered. The journey was continued without any event of note occurring, until May 1st, when the course was changed to the Kingaite coast. The Grinnell Glacier was visited, which was estimated to be fully one hundred miles long. Its height at the highest point reached is 3,500 feet. From this point various other bays were visited. Thence they proceeded among many islands, and came to a channel where they found a space of open water abounding in ducks and other aquatic birds and seals. This raised the siege of hunger which had been endured almost since the time they had left the ship. The journey was continued down the bay, passing rapidly on the right Cape Poillon and Newell's Sound, and on the left, Pike's Island; the course being along near the Kingaite coast, and direct for Cape Vanderbilt. In leaving the latter point the course was almost in line with Cape Hill, the south termination of Chase Island. The return journey to the ship was commenced on the 20th of May, which was reached early next morning.



ENGRAVING, TOOKEOLITO, AND CHILD.

A short time after the return to the ship Capt. Hall secured the consent of his Innuit companions, Ebierbing and his wife Tookoolito, to return with him to the United States, in order that he might learn more of the language, manners and customs of their race, and have them return with him at a future time on his expedition to King William's Land.

Early in June two more relics of Frobisher's Expedition were procured from one of the Esquimaux—a piece of brick and a musket ball, the latter of which the giver said had been found before his race knew anything of guns.

The ship was left June 14 for a visit to the whaling depot at Cape True, which was reached in safety, and the captain and his men were found to be fat and healthy. After remaining a few days with the whalers, Capt. Hall and an Innuit companion started once more for Cornelius Grinnell Bay, for the purpose of surveying it. During the trip they encountered very severe weather. The ice threatened to break up and crush them, and the wind blew a hurricane. It was the intention to go to the extreme of the bay, but the season was so far advanced as to render ice-traveling very dangerous; therefore the party advanced no farther than Allen's Island, of which a renewed examination was commenced. The discoveries made were of minor importance, and the return journey to the ship was commenced on the 26th of June. On the way back the time was improved in making observations for the completion of the chart. On the day following the ship was reached, when matters were found to be proceeding in the usual course.

Another expedition was commenced June 30. Cape True was reached by sled, from whence a party of eleven was secured to proceed further by boat. The islands which had been visited before were visited again. Relics were sought and a few secured, but things which it was particularly desirous to obtain could not be found. The journey was continued until July 19, when they again started for the ship. As they proceeded along the coast, observations were renewed, and so far as it could be done the link of bearings and sextant angles which now extended all around Frobisher Bay, was completed. The next point for which the party started was the southeast extreme—Hall's Island of Fro-

bisher. A number of small islands and channels were found and named. Passing along Lok's Land, a stone monument was discovered on the edge of the shore. Subsequently others were seen, which the natives said told of a time long ago, when many of their race lived there, who were ultimately all lost, since when no Innuit dares to dwell on the island. Bear Island was also visited, and a day later the objective point—Hall's Island of Frobisher—was reached. An ascent of Mount Warwick was immediately made, and the weather being favorable, many important places were connected by sextant angles. The return trip to Cape True was speedily and safely made.

On Friday, Aug. 8, two days after their return, Capt. B. arrived in a boat direct from George Henry Bay, with the announcement that the ship was nearly free, that the ice in Field Bay was all broken up, and that much of it had drifted out to sea. He ordered all hands to proceed on board immediately. The men were overjoyed, and all was excitement. The tents were struck quickly, and everything which was necessary, and which could be carried, was placed in the boat. Farewells were paid to many familiar spots as they were passed. The ship was speedily reached, and the men were glad again to tread her decks in the knowledge that she was once more free.

On Saturday, Aug. 9, the weather was calm and clear. The ice had cleared away, and the ship was swinging lazily at her anchors. There was no wind, but it was no time to hold on, and, finding it useless to tarry longer, the captain gave the signal, and the anchors were once more hoisted to their place on board. The ship was soon clear, and, with lines out, all boats were manned to tow her down the bay. The Innuits surrounded her and many words of kind regret were exchanged as they parted company. Soon a fresh breeze was welcomed, and the George Henry was once more homeward bound. Nothing worthy of note occurred during the voyage. St. Johns, Newfoundland, was reached without accident on Aug. 21st, when the ship again sailed for New London, where she arrived on Saturday morning, Sept. 13, 1862. Thus ended a voyage and explorations of two years and three and a half months, in and about the Arctic seas.

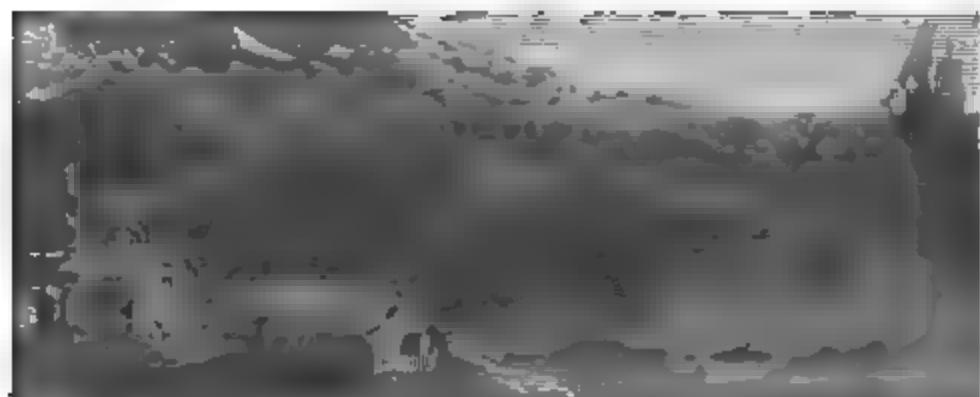
With Hall's first voyage closes the connected series of efforts to discover the particulars of the Franklin tragedy, lasting from their inception in 1848-9, till the termination of the enterprise just described. A later endeavor of Hall resulting in partial success, will be described in connection with his third and last voyage. We next turn to the long list of recent explorers, who, from 1860 to 1881, have made voyages for independent Arctic discovery.





PART V.

RECENT POLAR EXPEDITIONS.



*“The summer went, the winter came,
We could not rule the year;
But summer will melt the ice again,
And open a path to the sunny main,
Whercon our ships shall steer.*

*“The winter went, the summer went,
The winter came around;
But the hard green ice was strong as death,
And the voice of Hope sank to a breath,
Yet caught at every sound.”*

CHAPTER LXV.

THEORY OF HAYES—ANNOUNCES HIS PLAN—SUBSCRIPTIONS—A PRESENT—THE START—ICEBERGS—THE KAYAK—PRØVEN—UPERNAVIK—STRANGE SCENES—CAPE YORK—A GALE—ALMOST A WRECK—HARTSTENE BAY.

With the enthusiasm of an ardent young man—he was only twenty-one, and had just graduated as a physician, when he joined Dr. Kane in 1853—Dr. Isaac Israel Hayes became possessed of the idea that beyond the ice-belt which surrounded the Arctic lands hitherto discovered, would be found an open body of water stretching to the Pole. “Accepting the deductions,” he says, “of many learned physicists that the sea about the North Pole cannot be frozen, that an open area of varying extent must be found within the ice-belt which is known to invest it, I desired to add to the proofs which had already been accumulated by the early Dutch and English voyagers, and more recently by the researches of Scoresby, Wrangell, and Parry, and still later by Dr. Kane’s Expedition.”

Hayes submitted his ideas and plans to the American Geographical and Statistical Society, in a paper read before them toward the close of 1857, which attracted some attention. In April, 1858, he brought the subject to the notice of the American Association for the Advancement of Science, at its annual meeting, which appointed sixteen of its members a committee on the subject. Other societies took similar action; Dr. Hayes gave several lectures in furtherance of the project; and about 400 prominent gentlemen and business houses of Philadelphia, New York, Albany and Boston subscribed to the Arctic Exploration Fund. The Smithsonian Institution made a tender of the necessary instruments; and in June, 1860, the necessary expenses for one vessel had been collected. Hayes now curtailed his original plan, which embraced a small steamer—which was to make the voyage under sail, reserving its

steam-power for boring through the ice—and a sailing vessel, to act as tender or store-ship. A staunch merchant schooner in the West Indies trade, of only 133 tons burden, but an A1 register, and drawing only eight feet of water, was purchased for the voyage. It was already late in the season, in view of the distance that intervened, for successful exploration beyond latitude 80° , where Hayes proposed to begin. The necessary improvements to adapt the ship to her new sphere were hurriedly pushed forward; and the stowage of supplies and provisions added further delay. It was the 7th of July before the snug little craft, which had been named the United States, was towed out from the harbor of Boston, and the 9th before she left Nantasket Roads for the voyage to the north. Her company consisted of fourteen persons, officers and men, besides the commander and owner, Dr. Hayes. The vessel and outfit had been presented to him on the eve of his departure.

On the second day they ran into a fog-bank which enveloped them a whole week, and in which they finally ran on the rocks off the Newfoundland coast, but had the good fortune to get away without injury, though Hayes says it seemed as if they could touch the beetling cliffs with their hands. With favorable winds and weather they now pushed rapidly to the west, seeing the first iceberg on the 29th, and entering within the Arctic circle on the evening of the 30th. Thus they had made an average of nearly 100 miles a day from Nantasket Roads, having reached the region of "the midnight sun" in twenty days. While in Davis' Strait they had a narrow escape from a serious disaster in a squall; the cabin was flooded at least a dozen times a day the skylight knocked to pieces and the table, standing directly under it, more than once cleared of crockery and eatables without the aid of the steward.

They made the southern extremity of Disco Island on the last day of July, and the Nord Fiord of the same, in latitude 70° , on the 1st of August. Speeding past Waigat Strait, and Omenak Fiord or Jacob's Bight, they arrived off Svarte Hook on the 2d, when the wind, which had so long favored them, died completely away. The fog lifted, and "iceberg after iceberg burst into view, like castles in a fairy tale. The sea was smooth as glass; not a ripple broke its dead surface; not a breath of

air stirred. The dark headlands stood boldly out against the sky; the clouds, and sea, and bergs, and mountains were bathed in an atmosphere of crimson, and gold, and purple, most singularly beautiful. The air was warm almost as a sumner's night at home; and yet there were the icebergs and the bleak mountains, with which the fancy in our land of green hills and waving forests, can associate nothing but cold repulsiveness." Notwithstanding the poetic beauty of the scene, the prosy reality of an iceberg close at hand, and lofty as the topmast, obliged them to man the



DR. E. L. HAYES.

boats to haul the vessel out of danger. On the 6th they made the harbor of Prøven, forty miles south of Upernivik, convoyed by a fleet of Greenland kayaks.

"The kayak of the Greenlander," says Hayes, "is the frailest specimen of marine architecture that ever carried human freight. It is eighteen feet long, and as many inches wide at its middle, and tapers, with an upward curving line, to a point at either end. The skeleton of

the boat is made of light wood; the covering is of tanned sealskin, sewed together by the native women with sinew thread, and with a strength and dexterity quite astonishing. Not a drop of water finds its way through their seams, and the skin itself is perfectly waterproof. The boat is about nine inches deep, and the top is covered like the bottom. There is no opening into it, except a round hole in the center, which admits the hunter as far as his hips. This hole is surrounded with a wooden rim, over which the kayaker laces the lower edge of his water-tight jacket, and thus fastens himself in and keeps the water out. He propels himself with a single oar about six feet long, which terminates in a blade or paddle at either end. This instrument of locomotion is grasped in the center, and is dipped in the water alternately to right and left. The boat is graceful as a duck, and light as a feather. It has no ballast and no keel, and it rides almost on the surface of the water. It is therefore necessarily top-heavy. Long practice is required to manage it, and no tight-rope dancer ever needed more steady nerve and skill of balance than this same savage kayaker. Yet in this frail craft he does not hesitate to ride seas which would swamp an ordinary boat, or to break through surf which may sweep completely over him. But he is used to hard battles, and in spite of every fortune he keeps himself upright." Six days were here spent in the effort to secure dogs, but only half a dozen old ones and a less number of young ones were all that they were able to procure, an epidemic among them having left many hunters without any, and none with their usual number. To part with their dogs was to run the risk of starvation; and though Hayes offered a liberal equivalent in pork, beef, and canned meats, they preferred to retain the means of hunting the seal and walrus. The chief trader, a Mr. Hansen, with great courtesy placed his own team at the service of the explorer, but did not feel at liberty either to advise or command the natives to part with theirs.

A government house, one story high, and plastered over with pitch and tar, is the most conspicuous house in Pröven. A shop and a lodging house for a few Danish employes stand next in importance. Two or three less imposing structures of the pitch and tar description, inhab-

ited by Danes who have married native women; a few huts of stone and turf, roofed with boards, and overgrown with grass; about an equal number of like description, but without the board roof, and a dozen seal-skin tents, all pitched about promiscuously among the rocks, make up the town. There is a blubber-house down by the beach, and a stunted flag-staff on the hill, from which the Danish flag, gracefully waving in the wind, gave the place a show of dignity. The dignity of civilization was further preserved by an old cannon which lay on the grass under the flag, whose rusty throat made the welkin ring as our anchor touched the Greenland rocks.

Leaving Pröven, that is, "Experiment," on the 12th, they reached Upernivik, that is "Upper Harbor," $72^{\circ} 40'$ by 56° , on the evening of the same day. Here they found a Danish vessel taking on a cargo of oil and skins for Copenhagen, which gave an opportunity of sending letters home. Upernivik was found to differ but little from Pröven—a few huts more and about two hundred inhabitants, Danes, half-breeds, and Esquimaux, besides a church and parsonage. Gilson Caruthers, the boatswain and carpenter of the schooner, having been found unexpectedly dead in his berth, the commander had occasion to visit the parsonage, and thus describes some of its features and personages: "I tapped at the door, and was ushered into a cosy little apartment—the fastidious neatness of which left no doubt as to the sex of its occupants—by the oddest specimen of womankind that ever answered bell. She was a full-blown Esquimaux, with coppery complexion and black hair, which was twisted into a knot on the top of her head. She wore a jacket which extended to her waist, sealskin pantaloons, and boots reaching above the knees, dyed scarlet, and embroidered in a manner that would astonish the girls of Dresden. The room was redolent of the fragrant rose and mignonette and heliotrope, which nestled in the sunlight under the snow white curtains. A canary chirped on its perch above the door, a cat was purring on the hearth-rug, and an unmistakable gentleman put out a soft white hand to give me welcome. It was the Rev. Mr. Anton, missionary of the place. Mrs. Anton soon emerged from a snug little chamber adjoining. Her sister came in im-

mediately afterward, and we were soon grouped about a homelike table."

They were detained four days at Upernivik by the burial of Caruthers, and procuring the last Arctic supplies, including five men, an interpreter with his dog team, and the forementioned team of the trader, Hansen. Leaving this limit of safe navigation and civilized existence behind, they soon encountered a heavy line of icebergs, some of which were judged to be two hundred feet high and a mile long, and spent four days—"now at anchor, then moored to a berg, and again keeping free from danger through a hard struggle with the oars"—in threading their dangerous way through this labyrinth.

"The ice was here,
The ice was there,
The ice was all around;
It creaked and growled,
And roared and howled
Like demons in a swound."

At one time they were in imminent danger of being crushed by the breaking up of one of the bergs, and only escaped by anchoring to another at a little distance and hauling on a rope, getting only twenty yards away, when a huge mass tumbled into the sea. As it was, they lost the mainboom, and small fragments of the ice were showered upon the deck. Hayes counted 500 separate bergs without exhausting the list. "Birds and beasts and human forms and architectural designs took shape in the distant masses of blue and white. The dome of St. Peter's loomed above the spire of Old Trinity; and under the shadow of the Pyramids nestled a Byzantine tower and a Grecian temple. To the eastward the sea was dotted with little islets—dark specks upon a brilliant surface. Icebergs great and small crowded through the channels which divided them, until in the far distance they appeared massed together, terminating against a snow-covered plain that sloped upward until it was lost in a dim line of bluish whiteness. It was the *mer-de-glace*, or sea of ice, which covers the length and breadth of the Greenland Continent. The snow-covered slope was a glacier descending therefrom—the parent

stem from which had been discharged, at irregular intervals, many of the icebergs which troubled us so much."

They arrived at Tessuissak, or Bay Place, which comprised a few Esquimaux tents and permanent huts, on the 21st, where they made some exchanges with the natives, and were detained by drift-ice until the evening of the 22d. Passing Cape Shackleton, Horse's Head, and Wilcox Point, with the Devil's Thumb in sight, they entered Melville Bay on the 23d, with nothing else in sight but the "swelling and limitless billows"—a piece of rare good fortune. But a snowstorm soon came on and after ten hours of rapid sailing under a favorable wind they came suddenly on an iceberg, which they passed so close, that "the fore-yard actually grazed its side, and the surf was thrown back upon them from its white wall." After lying becalmed some hours about the middle of the bay, a favorable wind again arose on the 24th, and they sped forward until Cape York was seen "advancing in the bosom of the sea." On the 25th they encountered the first field of ice, about fifteen miles wide, but easily bored through under a full pressure of canvas filled by a favoring wind. It had taken fifty-five hours to traverse Melville Bay. A little to the east of the cape, at Kikertait, or "Place of Islands," Hayes, as he had anticipated, picked up Hans, the young Esquimaux protégé of Dr. Kane, who had deserted that navigator some six years before to marry a young woman of this region. In a solitary tent, apart from the rest of the tribe, and overlooking the bay, he was found with his wife, Merkut, their baby, Pingasuk, that is "The Pretty One," a brother-in-law and mother-in-law, apparently on the look-out for deliverance. Dr. Hayes now took him, his wife and child, leaving the wife's brother and mother behind, without any regret on his part. The whole tribe numbers only about twenty besides the family of Hans. With a favoring wind they continued to push rapidly to the north, toward Wolstenholme Sound, sailing at one time between two sections of an iceberg connected under water, the schooner twice grazing the common base with her keel. On the evening of the 26th they were off Booth Bay, the commander's winter quarters in his boat-journey of 1854; and on the next day arrived off Hakluyt Island in Whale Sound. Here they

encountered an ice-pack, which they passed through in safety, though not without danger; and on the morning of the 28th, saw Cape Alexander at the entrance to Smith Sound, twenty miles ahead. In the afternoon, after having actually got within the Sound, they fell in with another ice-pack. While menaced by this danger, a greater one arose. A terrific northern gale sprang up; the spray flew over the deck, sheathing deck, spars and rigging, as well as men, in coats of ice. They found partial shelter from the hurricane under the cliffs, or they would have been driven possibly beyond Cape York, or upon the ice-pack. Off Cape Alexander it was one mass of seething foam, whirled upward ever and anon by the ever-changing wind gusts.

Thus detained until the 30th, the direction of the gale then changed, driving them before it and threatening to carry them into mid-channel from the protection of the eastern cliffs, but they succeeded in casting anchor near the shore. The next day the vessel dragged her anchors, losing one; and was driven on some bergs, crushing the stern-boat and bulwarks, and veering round, lost her jib-boom and had her bowsprit and foremast sprung. Scudding before the wind, with mainsail spread to get away from the icebergs, the sail was torn to pieces, but they had been driven once more within the Sound. An effort was now made to pass to the west side, toward Cape Isabella, but encountering the solid pack for the second time, there was no alternative but to hug the Greenland coast, in an effort to gain Fog Inlet, twenty miles above Cape Alexander. The gale, after a temporary lull, set in again from the north, and drove them once more south of Cape Alexander, on the 1st of September. Another fight was made for the Sound, during the next two days, but only to cripple the vessel more severely. "Her rudder was split, and two of its pintles were broken off, leaving only one uninjured; the stern-post was started, fragments of the cut-water and keel were floating alongside her in the sea; and she was apparently in a sinking condition. As the ice touched the schooner, she groaned like a conscious thing in pain, and writhed and twisted as if to escape her adversary, trembling in every timber from truck to keelson." Soon she was lifted up by the pressure of the ice under her keel, and cradled like Bach's

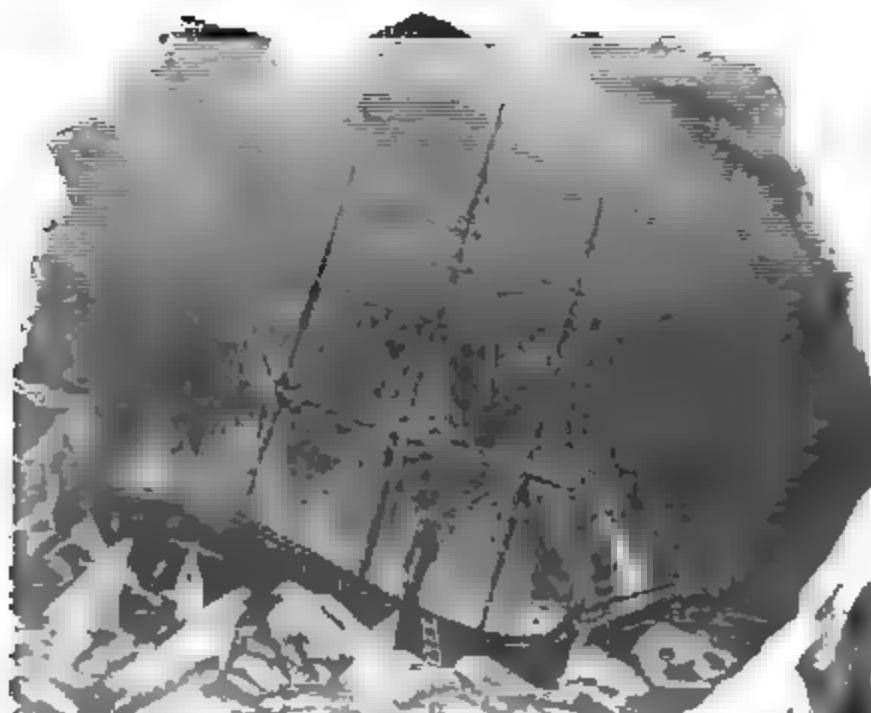
ship, in 1837, for eight hours, but was then let down—first her bow, and then the stern—by the movement of the floes. She had been so strained that she was found to leak considerably, but one hour in four at the pumps kept the water from gaining in the hold.

It was, however, becoming clear to commander and men that she was scarcely in fit condition to wage another battle with the ice. The marvel was that she did not become a total wreck; it is not known that any vessel of her size and build ever went through such a series of desperate struggles and lived. Hayes had hoped to get beyond Cape Isabella, on the west side of Smith Sound, as high perhaps as latitude 80° , in Grinnell Land, which he had personally reached in Kane's Expedition. Having twice failed to penetrate the ice-pack in that direction, he strove to make Cape Hatherton, in $78^{\circ} 30'$, on the Greenland side—the most prominent headland of the peninsula which is now known by his name. Foiled in both endeavors by the wind and ice, and perhaps the lateness of their arrival, they now crept back into Hartstene Bay, and anchored in safety some miles to the northeast of Cape Alexander. They had won at least a partial victory by securing an anchorage within the sound. Not yet content to give up the struggle for a higher latitude before going into winter quarters, Hayes set out to explore the sound to the north along the Greenland shore, which had the usual lane of open water between the land ice and the ice-pack.

Leaving the sailing master to make such repairs as were practicable under the circumstances, Hayes went up the sound in the whale boat to Littleton Island, in $78^{\circ} 20'$, Inglefield's limit in 1852, where his companion, Dodge, shot a reindeer, the sole inhabitant of the desolate island. This was the only satisfactory result of the exploration, for the ice-pack was found as impassable for the schooner as it had already proved. The interpreter and Hans had also killed two deer, thus securing a valuable addition to their provisions.

Both parties having returned to the vessel, one more effort was made to work to the northward through the pack with oars and hawser, and other appliances. Gaining here a little with hard effort, and then losing it by the drift of the ice; occasionally a bit of open water, and then

a squeeze or nip from the ice, they worked manfully but hopelessly on, until they were hemmed in by the pack, with new ice forming around and threatening to inclose them permanently in its embrace. A favorable wind arising, they put back into Hartstene Bay, reaching a safe harbor behind a cluster of islets near its head, and Hayes announced that they would there establish their winter quarters.



CHAPTER LXVI.

HAYES IN WINTER QUARTERS—MANIFOLD PREPARATIONS—AN ICE-FIORD EXPLORED—“BROTHER JOHN’S GLACIER”—SONNTAG SURVEYS THE GLACIER—A WELL-FILLED LARDER—AN ARCTIC JOURNAL—KNORR’S SPEECH—UNUSUAL WEATHER—A SERIOUS CALAMITY—AURORA BOREALIS—SEARCH FOR SONNTAG—ACCOUNT OF SONNTAG’S DISASTER.

Toward the close of the first week in September they had finally cast anchor in the harbor referred to, which Hayes now named Port Foulke, in honor of one of the chief patrons of the expedition, William Parker Foulke, of Philadelphia. It was exposed to the southwest, but in other directions well sheltered, and little trouble was anticipated, as the prevailing wind was from the northeast. Yet they had two pretty severe rubs from the floes driven in upon them by southwest gales, before the harbor became entirely closed for the season. They now proceeded to clear the schooner, conveying her stores and rigging to a stone building erected by them on a ledge of the shore some thirty feet above the level of the harbor. The vessel was then roofed over, giving a room eight feet high in the center, and six and a half at the sides. The hold was fitted up for the crew and the cook-stove brought there from the galley. Meanwhile a hunting party was organized under the leadership of Jensen, and they seldom came back empty handed. Reindeer were encountered in herds of ten or more, and hares and foxes were also abundant. An observatory was erected under the superintendence of the astronomer of the expedition, August Sonntag, who was also second in command of the schooner, and the commander’s most valued lieutenant. Pendulum experiments, magnetic and meteorological observations, and variations of temperature, were carefully noted and recorded.

Five weeks having been thus busily occupied in manifold prepara-

tions, they took formal possession of their winter residence on the schooner on the 1st of October. The temperature now sank to 10° below zero, and they were soon completely frozen in, which gave them security against the ice-floes from the exposed quarter, and easy access over the ice to the storehouse and observatory, and to the hunting grounds beyond. The sun disappeared on the 15th of October, and they were just entering on the Arctic night of four months, but still had nine hours of twilight daily. On the 16th Hayes made a second trip with his dog-team—his first, a few days before, had been merely a test excursion over the harbor—and explored the fiord extending inland from the head of Hartstene Bay some six miles, with a width of three or four miles. The team comprised twelve dogs, capable of making six miles in twenty-eight minutes. The traces were just long enough to place the shoulders of the dogs all in line, twenty feet in front of the runners of the sledge. The dogs are guided by the whip and voice of the driver, and the whip is seldom applied to the bodies of the animals, being generally thrown on the snow to the right or left, as an indication of the direction to be taken, as well as a gentle admonition that it is well in hand, to be used on the refractory or indolent. They are, however, liable to become unmanageable in the hands of an unskilled driver, especially when distracted by the uncovering of a fox or other animal, which they very naturally desire to pursue direct, regardless of all hints to take a different course.

In this excursion, the goal of which was Kane's glacier, named by him in 1855, "My Brother John's Glacier," Hayes discovered and named Alida Lake and Chester Valley, between the head of the fiord and the glacier. He also fell in with about one hundred reindeer, of which the driver and he killed two each. The ensuing day one of the seamen discovered several Esquimaux graves, but marked with no special characteristics—mere stone-piles heaped up without regard to symmetry or points of the compass. On the 19th Sonntag surveyed the glacier; and two days later, Hayes made a second trip, reaching its foot in forty minutes from the schooner. The purpose of this visit was to place stakes and make measurements of angles formed with hilltops or other stationary objects, which were to be re-measured the next year to ascertain the

movement of the glacier. During his absence, seventeen reindeer were killed by three of his men, nine of which were brought down by Hans. The birthday of the sailing-master, S. J. McCormick, was suitably celebrated on the return of the commander, by a "big dinner," which showed no lack of comfort and luxuries in that remote, inhospitable clime, but all "the good things," except the salmon and venison, had been imported from The Hub. These feasts were a regular feature of this particular expedition; the entry into winter quarters, the birthdays of the officers, besides Christmas and other recognized festal days, were made



BROTHER JOHN'S GLACIER.

occasions for them. They received the encouragement of the commander, who saw in them a help to promote contentment and good fellowship among the members of the party.

On the 22d of October Hayes again set out with five of his strongest men, and a hand-sledge laden with a tent, buffalo-skins, a cooking lamp, three quarts of alcohol, and three of oil, for fuel and provisions for eight days. Though there was now no daylight, properly speaking, even at noon, there was light enough to travel by. The purpose of this

new expedition was to explore the glacier, and the first encampment was at its foot, with the thermometer at 11° below zero. The second day was spent in scaling the front, and progressing upward some five miles, when they encamped, with the thermometer several degrees lower than on the previous night, but so tired that after a hearty supper they slept soundly. On the third day they made thirty miles, on the fourth twenty-five, the ascent being for those two days quite gradual, and the chief difficulty arising from the deep layer of snow through the crust of which the foot sank at every step. The temperature had now fallen to 30° —and to 34° during the ensuing night—when it was judged advisable to return. They were five thousand feet above the level of the sea, and seventy miles from the ship, “in the midst of a vast frozen Sahara unmeasurable to the human eye,” with a fierce wind blowing over its surface, and threatening to chill the adventurers into helpless inactivity and death. Fortunately for them, by turning their faces toward the harbor the wind was in their backs, and though cold and fierce, it helped them to make rapid progress down the slightly inclined plane of the glacier. After a run of forty miles they encamped for the night, and the next evening reached the schooner, where they learned the thermometer had sunk at no time during their absence of five days lower than 12° below zero, showing a difference of 22° .

Meanwhile Sonntag had ascertained the distance from the westernmost of the three islets—they had been already named Radcliffe, Knorr, and Starr in honor of three officers of the expedition—to Cape Alexander, eight nautical miles; Cape Isabella, thirty-one; and Cape Sabine, the easternmost point of Ellesmere Land to the northwest, in latitude $78^{\circ} 45'$, forty-two miles. On the 28th, the day after their return from the excursion on the glacier, their stock of game was found to be 74 reindeer, 21 foxes, 12 hares, 1 seal, 14 eider-ducks, 8 dovekies, 6 auks, and 1 ptarmigan, besides some two dozen reindeer deposited in caches where killed, awaiting transport to the vessel.

On the 3d of November, with the moon—whose light was now the chief reliance in traveling—four or five days past the full, Sonntag set out on a sledge-journey to Van Rensselaer Harbor, but was only able to

reach Fog Inlet, the way being blocked by impassable ice-hummocks on the one hand, and open water on the other. On the return trip they encountered and captured, after a long and exciting chase and a fierce and dangerous battle, a bear and its cub, and reached the schooner on the 6th. Four days later they were surprised by a thaw, which was rather a source of discomfort than pleasure, the chief advantage derived being a temporary reduction in the consumption of coal. Their stock of this valuable commodity was, however, likely to prove sufficient, as they had still about thirty-four tons, and had been using only about four bucketfuls a day for their two stoves. The temperature was kept habitually above 60°, and was oftener too warm than too cold on the vessel.

On the 11th of November appeared the first number of the "Port Foulke Weekly News," which had been duly announced on handbills and posters for a week previous, and was now ushered in with a great flourish. "Agreeable to national usage," a meeting was called and formally organized, with president, vice-president, secretary and orator of the day. The assistant editor, who was the commander's secretary, George F. Knorr, and only eighteen years old, was elected orator by acclamation, and delivered the following speech:

"FELLOW-CITIZENS:—Called by the unanimous voice of this unenlightened community to inaugurate the new era which has dawned upon a benighted region, it is my happy privilege to announce that we have, at the cost of much time, labor and means, supplied a want which has too long been felt by the people of Port Foulke. We are, fellow-citizens, no longer without that inalienable birthright of every American citizen —a free press and exponent of public opinion. Overcome with the gravity of my situation, I feel myself unable to make you a speech befitting the solemnity and importance of the occasion. It is proper, however, that I should state, in behalf of myself and my Bohemian brother (Henry W. Dodge, the mate and editor-in-chief), that, in observance of a time-honored custom, we will keep our opinions for ourselves and our arguments for the public. The inhabitants of Port Foulke desire the speedy return of the sun; we will advocate and urge it. They wish

light; we will address ourselves to the celestial orbs and point out the opportunities for reciprocity. * * * * *

"Fellow-citizens, this is a memorable epoch in the history of Port Foulke. We are informed that its aboriginal name is *Aunyeiqueipab-laitah*, which means—after it is pronounced—'The Place of the Howling Winds,' * * * on the remotest confines of our wide-spread country—a country, fellow-citizens, whose vast sides are bathed by the illimitable ocean. * * * It now devolves upon



THE LITTLE ALK.

us to bring the vexed question of national boundaries to a point—to a point, sirs! We must carry it to the Pole itself, and there, sirs, we will nail the Stars and Stripes, and our flag-staff will become the spindle of the world, and the universal Yankee nation will go whirling round it like a top.

"Fellow-citizens and friends:—In conclusion, allow me to propose a sentiment befitting the occasion—a free press, and the universal Yankee

nation! May the former continue in time to come, as in times gone by, the handmaiden of liberty, and the emblem of progress; and may the latter absorb ‘all creation,’ and become the grand celestial whirligig!”

The paper comprised sixteen pages of closely written matter, with a picture of Port Foulke, a portrait of Sir John Franklin, and a likeness of “General,” the commander’s Newfoundland dog. Enigmas, original jokes, items of domestic and foreign intelligence from “reliable correspondents,” an editorial department, telegraphic summary, original poems, personals and advertisements, filled its columns. The enterprise had been started at the suggestion of the commander, and received his official sanction as a useful contribution to the amusement of the company during the dark period. A school of navigation was also opened.

On the 12th of November the temperature had gone down only to 4° above zero, and the snowfall to date had been fifteen and one-fourth inches. The ice at its surface under the snow showed a temperature of 19° , and two inches lower down 20° ; while the snow in contact with the ice, was 18° . Ordinary print could still be read at noon, though not without difficulty, and only for a brief interval. The moon and stars were the main reliance out doors. The latter shone at all hours with almost equal brightness. “The moon, from its rising to its setting, shines continually, circling around the horizon, never setting until it has run its ten days of brightness; and it shines with a brilliancy which one will hardly observe elsewhere. The uniform whiteness of the landscape, and the general clearness of the atmosphere, add to the illumination of its rays, and one may see to read by its light with ease. The natives often use it as they do the sun, to guide their nomadic life, and to lead them to their hunting grounds.” On the 17th the temperature fell to 10° below zero, for which the commander expresses himself duly thankful, finding an unnaturally high range conducive neither to health nor comfort in high latitudes. On the 28th and 29th they could use no fire except for cooking, and the snowfall about this time was thirty-two inches, nineteen of which were precipitated in a single day, making the aggregate for the season forty-seven and a half inches. This fall of snow was followed by a shower—also unusual in those latitudes at that season of the year.

A serious calamity now befell the expedition in the loss of twenty-seven out of thirty-six dogs, during the first three weeks of December, by the same epidemic which had committed such havoc in Greenland, and had made it so difficult to secure the necessary supply, none too large from the first. On the 21st—by the light of the new moon for which he had waited, but in the very middle of the Arctic night—Sontag, with Hans as driver, set out with a sledge drawn by the nine survivors of the pack, and laden with the two men and provisions for twelve days, in an effort to reach some native villages to procure more dogs. The water in the harbor had now frozen to a depth of six and a half feet, thus forming a continuous encasement for the lightened schooner. Christmas was duly celebrated with a big dinner and such festivities as their circumstances would permit—all the more necessary now that the Arctic night had grown monotonous and wearisome, having lost all of its novelty, and given rise to no diversity of experience. The "Weekly News" made its appearance regularly, now with one editor, and then another. New Year's of 1861 had come and gone, and had been duly observed. The old year had been rung out, and the new rung in, after the stereotyped formula, amid cannonading from their solitary little swivel gun, and the fitful glare of their rockets, but no answering gun or light relieved the dreariness; and their efforts could only serve to render the sense of isolation more intense—Knorr's "Universal Yankee Nation, brought to a point," indeed.

On the 6th of January they witnessed two displays of the Aurora Borealis, the only ones hitherto observed; and a week later the snowfall for the season had increased to $5\frac{3}{4}$ inches—an addition of $6\frac{1}{2}$ since previous computation. Another week passed, and at noon "a faint twilight flush mounted the southern sky"—the welcome harbinger of the Arctic day. It suggested to the commander as a text for the day,— "Truly the light is sweet, and a pleasant thing it is for the eye to behold the sun." "And yet," says Hayes, "there is in the Arctic night much that is attractive to the lover of Nature. There is in the flashing Aurora, in the play of the moonlight upon the hills and icebergs, in the wonderful clearness of the starlight, in the broad expanse of the ice-

fields, in the lofty grandeur of the mountains and glaciers, in the naked fierceness of the storms, much that is sublime and beautiful. But they speak a language of their own—a language rough, rugged, and severe." But the stillness of Arctic scenery, away from the local turmoil and small activities of the vessel, was found oppressive. The heavens above and the earth beneath revealed only an endless and fathomless quiet. No footfall of living thing reaches the ear; no wild beasts howl through the solitude; no cry of bird enlivens the scene; there is no tree among whose branches the winds can sigh and moan. Silence ceases to be negative; it becomes endowed with positive attributes; one seems to hear, and feel, and see it. It stands forth a frightful specter, filling the mind with the overpowering consciousness of universal death. "I have seen," continues Hayes, "no expression on the face of Nature so filled with terror as the silence of the Arctic night."

Five weeks had now elapsed since the departure of Sonntag for the Esquimaux encampments to the south, and no tidings had been received. Preparations were made by the commander to go in search of him, and some preliminary examinations had been effected to ascertain whether he had gone round Cape Alexander, or had been compelled to cross the glacier. Two days' detention from high winds had lengthened the absence to thirty-nine days, when, on the 29th of January, as the party was about to begin the journey on foot, two Esquimaux arrived from Iteplik in the region of Whale Sound, with the sad intelligence that Sonntag was lost. Hans had reached their village, and was now coming behind with his worn-out dogs. They had made the run without a halt, with five dogs. On the last day of the month Hans arrived at the schooner without dogs or sled, but accompanied by his wife's brother. They had left father and mother, with five broken-down dogs—all that remained of the team—at the glacier, and come on afoot. By the death of Sonntag Hans had become master of the expedition, and utilized its resources in bringing his wife's family from Cape York, four dogs having died under the strain, and the other five being utterly exhausted. His account of the disaster to Sonntag was, that after having passed Cape Alexander in safety, and having made two fruitless attempts to find natives at the

nearest fishing-stations beyond, they struck across for Northumberland Island. Five or six miles from Sorfalik, on the eastern shore, where they had constructed a hut, Sonntag dismounted to warm himself by a run alongside. Not noticing the weak spot, he broke through into a small ice-crevice, while the driver was a little way behind adjusting some straps. Coming up almost immediately, Hans rescued him, apparently uninjured, and made all speed back to the hut which they had so lately left. On arriving, Sonntag was stiff and speechless. Hans now hurried him under cover, changed his clothing, applied such restoratives as were accessible, but his efforts proved unavailing; and after lingering about twenty-four hours in unbroken unconsciousness, Sonntag died. Hans closed up the hut to save the body from wild beasts, and proceeded onward to fulfill the objects of the mission.

He finally fell in with the Esquimaux at Iteplik, and was only three days' journey from the schooner; but the dead were dead, thought Hans, and he proceeded to look out for the living—the family of his wife, as stated—very much to the chagrin of the commander, and jeopardy to the interests of the expedition. How much was conscious wrong-doing, and how much was perverse ignorance, it was rather difficult to determine. Hayes had lost his most valued assistant, and had only five dogs left. With the period for active exploration fast approaching, “Sonntag's familiar acquaintance,” says Hayes, “with the physical sciences, and his earnest enthusiasm in everything that appertained to physical research, both in the field and study, made him an invaluable aid, while his genial disposition and manly qualities gave him a deep hold upon my affections. Similarity of taste and disposition, equal age, a common object, and a mutual dependence for companionship, had cemented more and more closely a bond of friendship which had its origin in the dangers and fortunes of travel.”

Early in February the twilight began to grow perceptibly, day by day; on the 10th it was almost broad daylight at noon, and as late as 3 o'clock one could read ordinary print; and on the 18th, they rejoiced to see the sun from the hill-tops, after an absence of 126 days; but its light would not directly strike the harbor for 12 days yet. With the

increasing light, hunting received a fresh impetus; and Hans and his father-in-law killed the first walrus early in February. Reindeer, wolves, and hares were killed in sufficient abundance by the men, and throughout the whole winter there had been no symptoms of scurvy or other disease. The general health was equal to the average in more favored climates; and, except the dreariness of the Arctic night, and the monotony of existence, there was but little to complain of.

In the latter part of February, some Esquimaux from Iteplik, 150 miles to the south, arrived at Port Foulke, and Hayes, by barter and presents, added six dogs to his pack, and secured the use of six more, with the services of their owner, Kalutunah. There were now at the winter quarters of the expedition seventeen natives—six men, four women, and seven children. Early in March, with the help of Kalutunah and Hans, the mate, Dodge, brought back the remains of Sonntag, which were interred on the terrace near the observatory which he loved so well. Over his grave was raised a mound of stones, and at its head a chiseled slab bearing his name, age—28 years,—and date of death—December, 1860.



CHAPTER LXVII.

HAYES' SLEDGE-JOURNEYS — HUMBOLDT GLACIER SIGHTED — THE HOPE — THE PERSEVERANCE — A SNOW-HOUSE — OFF FOR GRINNELL LAND — A PICTURE — SLOW PROGRESS — HIGH TEMPERATURE — UNSAFE ICE — HIGH LATITUDE — A PRUDENT RETURN — THE SHIP INJURED — ATTACKED BY WALRUSES — CAPE ISABELLA — WHALE SOUND — THE RETURN HOME — STARTLING NEWS — DEATH OF HAYES.

The first of these sledge-journeys began with the 16th of March, and its object was to determine the best route for his later efforts. He set out with two sledges drawn by nine and six dogs, and driven by Jensen and Kalutunah, respectively. After a misadventure five miles away, in which Jensen and his whole team were precipitated into a crevice, and a return to the ship for readjustment, which took only an hour, they set out for the north, and encamped the first night at Cape Hatherton, with the temperature at 40° below zero. At Fog Inlet, the next day, they noticed Hartstene's cairn and record of search, dated Aug. 16, 1855, and named the headland thus marked Cairn Point. Here also was made a deposit of surplus provisions, consuming the remainder of the day. They retained only enough for six days' consumption. With lightened sledges the prospect for good headway was promising, but they soon encountered hummocks, and after nine hours had only made twenty miles, when they went into camp for the third night, with the thermometer at 31° below zero within the snow hut, and $68\frac{1}{2}^{\circ}$ outside. The scene through which they now traveled northward "was like the Rocky Mountains on a small scale; peak after peak, ridge after ridge, spur after spur, separated by deep valleys into which we descended over a rough declivity, and then again ascended on the other side, to cross an elevated crest, and repeat the observation. The traveling was very laborious; it

was but an endless clambering over ice-masses of every form and size."

In five days from Cairn Point they sighted Humboldt Glacier, and proceeded to return, Hayes being satisfied that this route was impracticable, and that he therefore had no alternative but to try the west shore of the sound. They halted at Cairn Point for a further scrutiny of the route thence across the west; and while there Jensen killed a reindeer, which was a desirable addition to their supplies of dog-meat. Leaving for Port Foulke under a high, piercing wind, with the thermometer at 52° below zero, they made the thirty miles to the schooner in three and a half hours. The last days of March were utilized in conveying stores to Cairn Point, and making the necessary preparations for the work of the season. The temperature was still dangerously low, but having moderated somewhat in the first days of April, the party took final leave of the schooner—leaving Radcliffe alone of the original company, in charge—on the evening of the 3d of April. The cavalcade comprised the Hope sledge with eight dogs, and Jensen as driver; the Perseverance, with young Knorr as driver; and bringing up the rear, an unnamed sledge, drawn by eight men of the ship's company, with master and mate on either side, to direct and help, and laden with the twenty-foot metallic life-boat with which it was hoped to navigate the "Open Polar Sea"—when they reached it. The commander descended from the schooner, Radcliffe fired off the cannon, and the company set out on their weary journey.

The inexperienced men soon gave trouble, and two or three would have suffered themselves to be frozen to death had they not been urged to exertion by the watchfulness of the commander. They staid eighteen hours at the first encampment to restore these sufferers, who fortunately escaped serious injury. On the 5th they encamped at Cape Hatherton, with the men in better trim and more cheerful spirits, under the influence of a rising temperature and increasing experience. On the 6th they reached Cairn Point, and Hayes took the first opportunity after going into camp to reconnoiter the sound, which he proposed to cross from this point. The view was anything but encouraging—was in fact,

"the ugliest scene his eye had ever chanced to rest upon." He had found it bad in 1854, and now it appeared to be much worse; and unfortunately its appearance did not deceive him. It proved to be even worse than it looked.

They were detained some days at Cairn Point imprisoned by a gale, "in which," says Hayes, "my people could no more live than in a fiery furnace." The den in the snowbank which they occupied—a type of similar constructions—is thus described: "It is a pit eighteen feet long by eight wide and four deep. Over the top of said pit are placed the boat oars, to support the sledge, which is laid across them, and over the sledge is thrown the boat sail, and over the sail is thrown loose snow. Over the floor there is spread a strip of India-rubber cloth; over this cloth a strip of buffalo skins, which are all squared and sewed together; and over this again another just like it. When we want to sleep we draw ourselves underneath the upper one of these buffalo strips, and accommodate ourselves to the very moderate allowance of space assigned to each person, as best we can. We go to bed without change of costume except our boots and stockings, which we tuck under our heads to help out a pillow, while what we call reindeer sleeping-stockings take their place on our feet." In this snow-hut were crowded Hayes and his twelve companions. Some stores were brought forward from Cape Hatherton despite the storm, and everything that was to be left at the central depot, including the life-boat, was securely covered.

All things being now in readiness, and the wind having veered to the south, they set out again on the 10th of April, with three sledges as before, except that the third was lightened of the boat—diagonally across Smith's Sound for Grinnell Land, away to the northwest. The journey soon lay over a surface as rugged as that previously traversed in the experiment trip on the Greenland side. "The interstices," says Hayes, "between these closely accumulated ice masses are filled up, to some extent, with drifted snow. The reader will readily imagine the rest. He will see the sledges winding through the tangled wilderness of broken ice-tables, the men and dogs pulling and pushing up their respec-

tive loads, as Napoleon's soldiers may be supposed to have done when drawing their artillery through the steep and rugged passes of the Alps. He will see them clambering over the very summit of lofty ridges, through which there is no opening, and again descending on the other side, the sledge often plunging over a precipice, sometimes capsizing, and frequently breaking. Again he will see the party, baffled in their attempt to cross or find a pass, breaking a track with shovel and hand-spike, or again, unable even with these appliances to accomplish their end, they retreat to seek a better track; and they may be lucky enough to find a sort of gap or gateway, upon the winding and uneven surface of which they will make a mile or so with comparative ease. The snow-drifts are sometimes a help, and sometimes a hindrance. At the very moment when all looks promising, down sinks one man to his middle, another to the neck, another is buried out of sight, the sledge gives way, and to extricate the whole from this unhappy predicament is probably the labor of hours; especially if, as often happens, the sledge must be unloaded. Not infrequently it is necessary to carry the cargo in two or three loads. It would be difficult to imagine any kind of labor more disheartening, or which would sooner sap the energies of both men and animals. The strength gave way gradually, but when, as often happened, after a long and hard day's work, we could look back from an eminence and almost fire a rifle-ball into our last snow-hut, it was truly discouraging." Among the distinguishable masses encountered was an old ice-field, about six by four miles in extent, and twenty feet high above the water level, with hummocks rising to a height sometimes of eighty feet. Its depth under water was probably 140 feet, and Hayes estimated the weight of its solid contents at 6,000,000,000 tons! This they reached on the 24th of April, with the thermometer at 19° below zero; and they were only thirty miles from Cairn Point, and sixty-six from Port Foulke, an average of just three miles a day, though they had probably traveled about two hundred miles since leaving the schooner.

"My party," says Hayes, under date of the 25th, "are in a very sorry condition. One of the men has sprained his back from lifting; another has a sprained ankle; another has gastritis; another a frosted toe; and all

are thoroughly overwhelmed with fatigue. The men do not stand it as well as the dogs." Hayes began to doubt whether he should ever reach Grinnell Land with the party. The mate compared their undertaking to an attempt "to cross New York over the house tops," and Hayes could not help bitterly exclaiming—"Smith Sound has given me but one succession of baffling obstacles." On the 28th, about midway of the sound, he sent back the men, except Knorr, Jensen, and John McDonald, a seaman. With these companions, two sledges, fourteen dogs, and 800 pounds of provisions, he would still make an effort to win the victory. In fourteen days more, after encountering as great difficulties as at any stage of the journey, they finally reached the west coast at Cape Hawks—eighty miles in thirty-one days; but probably six times eighty actually traversed up and down, right and left, backward and forward, as described.

Resting a few hours, they pushed to the north, crossing to the opposite headland, named for Napoleon III. a few years before; and on the way suffered a serious drawback in the disabling of Jensen. It became necessary that he should ride because of a fresh injury to an already broken leg; and this necessitated the transfer of some of his sledge load to the other sledge. Hayes and his two uninjured companions now buckled on their harness to help the team of the overladen sledge; and thus equipped, they crossed the bay between the points mentioned. Passing Cape Napoleon with difficulty, the next day they arrived at the farthest point reached by Hayes in 1854, beyond Cape Frazer, on the third day from Cape Hawks, and were now within Kennedy Channel. Crossing Gould Bay to Cape Leidy, they fell in with traces of an Esquimaux encampment, and suffered from an unseasonably high temperature of 32° , which occasioned some apprehension of an early breaking up of the ice. The spring was fast approaching. The coast presented a line of lofty silurian rocks, much broken by winter frosts and summer thaws. Inland could be seen lofty peaks clothed in an unbroken covering of snow, but no glaciers. Here again were encountered remains of an Esquimaux camp, and on this fourth day from Cape Hawks, May 15, while helping his team at a particularly difficult point, Jensen again hurt his leg and

strained his back, more completely disabling him. The next day, leaving McDonald behind with Jensen, Hayes and Knorr pushed forward to reach the highest latitude attainable. They were already sixty miles beyond Cape Constitution, Morton's limit in 1854. The first day they made about ten miles in nine hours, amid scenes of boundless sterility and dreary desolation. "As the eye wandered," says Hayes, "from peak to peak of the mountains as they rose one above the other, and rested upon the dark and frost-degraded cliffs, and followed along the ice-foot, and overlooked the sea, and saw in every object the silent forces of Nature moving on through the gloom of winter and the sparkle of summer, now, as they had moved for countless ages, unobserved save by the eye of God alone, I felt how puny indeed are all men's works and efforts; and when I sought for some token of living thing, some track of wild beast—a fox, or bear, or reindeer—which had elsewhere always crossed me on my journeyings, and saw nothing but two feeble men and our struggling dogs, it seemed indeed as if the Almighty had frowned upon the hills and seas."

After a ten hours' march on the 17th and four on the 18th, with a headland in sight about twenty miles ahead, their progress was suddenly arrested. "The unerring instinct of the dogs," says Hayes, "warned us of approaching danger, and I quickly perceived that the ice was rotten and unsafe. Walking now in advance of the dogs, they were inspired with greater courage. I had not proceeded far when I found the ice giving way under the staff with which I sounded its strength, and again we turned back and sought a still more eastern passage." Testing first one side, four miles out to sea, and then the other, and judging the head of the bay to be perhaps twenty miles away, eight hours were consumed in the vain effort to find a safe passage across.

On the morning of the 19th, "after a most profound and refreshing sleep," Hayes ascended a cliff about 800 feet high, to survey the situation. "The ice," he says, "was everywhere in the same condition as in the mouth of the bay across which I had endeavored to pass. A broad crack, starting from the middle of the bay, stretched over the sea, and uniting with other cracks as it meandered to the eastward, it expanded

as the delta of some mighty river discharging into the ocean, and under a water-sky, which hung upon the northern and eastern horizon, it was lost in the open sea. Standing against the dark sky at the north, there was seen in dim outline the white sloping summit of a noble headland—the most northern known land upon the globe. I judged it to be in latitude $82^{\circ} 30'$, or 450 miles from the North Pole. Nearer, another bold cape stood forth; and nearer still the headland for which I had been steering my course the day before, rose majestically from the sea, as if pushing up into the very skies a lofty mountain peak, upon which the winter had dropped its diadem of snows. There was no land visible except the coast upon which I stood. The sea beneath me was a mottled sheet of white and dark patches, these latter being either soft, decaying ice, or places where the ice had wholly disappeared. To proceed farther north was of course impossible.” The point actually reached, he named Cape Lieber, and the peak behind it Church’s Monument; the sound, Lady Franklin, the headland beyond, Cape Eugenie; the lofty peak behind Cape Eugenie he named Parry Mountain—now more usually Mount Parry—in honor of the great Arctic navigator of that name. The middle headland seen became Cape Frederick VII, in honor of the king of Denmark; and “the most northern-known land upon the globe” received the patriotic designation of Cape Union, in honor of a fundamental principle in the constitution of his country, then actually in jeopardy, beyond the knowledge of the explorer and his companions, in the first throes of the great Civil War. The bay between these last-mentioned capes was dedicated to the name of Wrangell; and the one between Frederick and Eugenie, to the geographer Petermann; while two lower down toward Cape Hawks, were named in honor of Carl Ritter and William Scoresby.

Hayes now planted the flag of the United States, and several small flags of different patrons of the enterprise, erected the usual cairn, and deposited the following record: “This point, the most northern land that has ever been reached, was visited by the undersigned, May 18, 19, 1861, accompanied by George F. Knorr, traveling with a dog-sledge. We arrived here, after a toilsome march of forty-six days from

my winter harbor, near Cape Alexander, at the mouth of Smith Sound. My observations place us in latitude $81^{\circ} 35'$, longitude $70^{\circ} 30'$, west. Our further progress was stopped by rotten ice and cracks. Kennedy Channel appears to expand into the polar basin; and, satisfied that it is navigable, at least during the months of July, August and September, I go hence to my winter harbor, to make another trial to get through Smith Sound with my vessel, after the ice breaks up this summer." "Then our faces were turned homeward," adds he, "but I quit the place with reluctance;" and the reader will sympathize with the feeling. The bravest thing to do is to turn back, with ambition and daring beckoning on to further achievement. The courage of prudent self-denial is greater than that of daring adventure. This a fool may possess, that belongs only to the wise. With a disabled companion in the rear, and a dangerous return journey, from a hundred miles beyond Morton's limit of 1854, and menaced by the risks of the ice breaking up, or provisions being exhausted before he could reach the schooner, prudence required that he should return, and he wisely obeyed its commands.

With the utmost difficulty they reached Jensen's camp, sixty miles away, having made an unbroken trip for the last fifty miles in twenty-two hours, under a terrific snowstorm that nearly proved fatal to men and dogs. After a welcome rest they pushed on to Cape Hawks, which they made in three days, and pushed across for Cairn Point. On the very eve of landing they were detached on a floe, which, however, was soon floated landward, fortunately touching the land-ice, when they hastened ashore. Farther on, at Cape Hatherton, they were compelled to abandon the sledges, the ice having become too broken, and finish the return journey by land. It had taken fifteen days since leaving the limit, and sixty-one from the schooner, when they arrived safely aboard on the 3d of June, "having traveled not less than 1,300 miles, and not less than 1,600 since first setting out in March." Hayes was firm in the conviction that if he could reach by vessel, the limit already attained over the ice, the voyage to the Pole could be made the ensuing season.

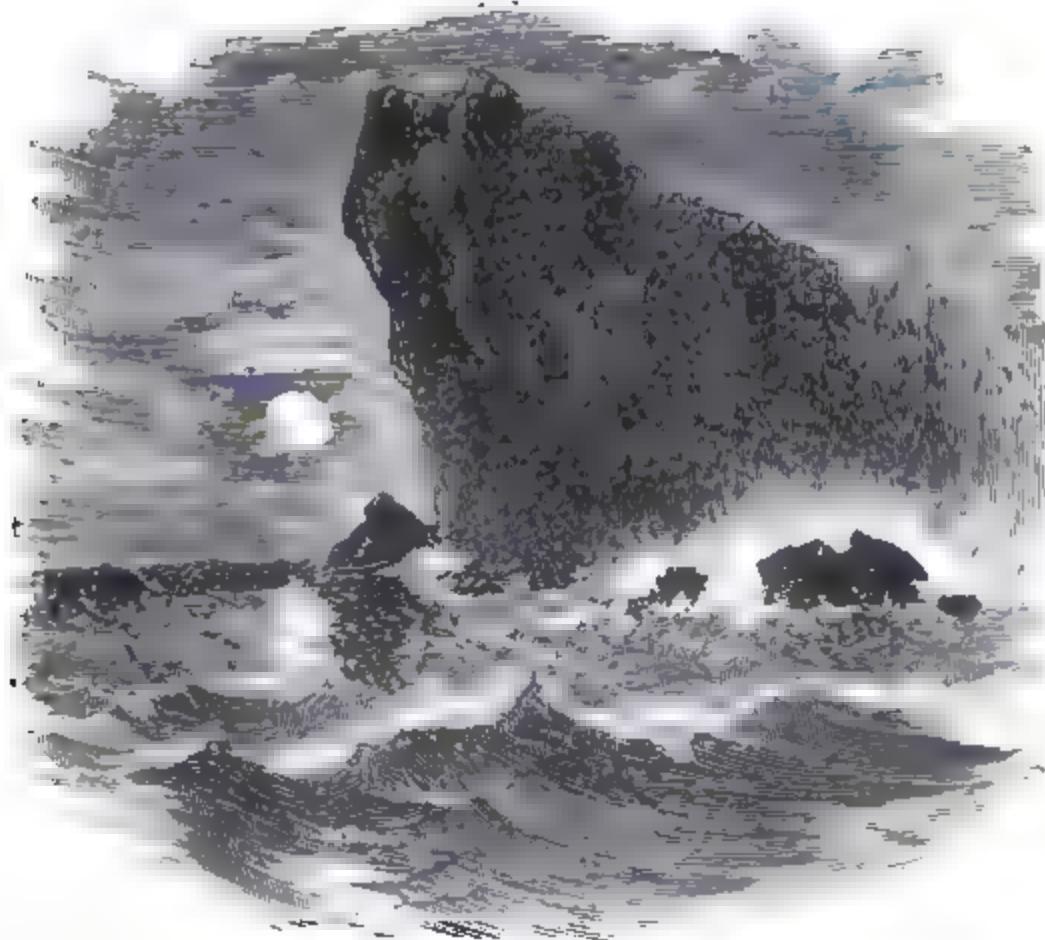
On careful examination, it had been clearly ascertained by the master and mate of the schooner, before the return of the commander that, as an-

ticipated, she had been seriously injured in her conflicts with the ice-pack, before going into winter quarters. Hayes' personal scrutiny confirmed the statement of his officers; and, as he says, "It now became a matter for serious reflection whether it were not wiser to return home, refit, add —what was of much consequence—steam power to my resources, and come back again immediately." Meanwhile, the United States was still held ice-locked, and the commanders occupied themselves with various avocations. "The sun, reaching its greatest northern declination on the 21st of June, we were now," says Hayes, "in the full blaze of summer. Six eventful months had passed over since the Arctic midnight shrouded us in gloom, and now we had reached the Arctic midday. And this mid-day was a day of wonderful brightness. The temperature had gone up higher than at any previous time, marking at medium 49° , while in the sun the thermometer showed 57° . The barometer was away up to 30.076, and a more calm and lovely air never softened an Arctic landscape,"—bringing to mind the Scriptural saying: "The winter is past and gone; the flowers appear on the earth; the time of the singing of birds is come." The auk, at least, had come in great abundance; and Hayes witnessed the catching of a hundred in a net, by Kalutunah, in a little while.

On the 3d of July their occupations were varied by a walrus hunt, in which two animals were secured, ten others killed and sunk, and many wounded. The herd attacked the boat of the hunters, and the useless slaughter of so many animals was the result. The "Glorious Fourth" was duly celebrated, though the weather was unfavorable—a mixture of hail, snow, and rain, and the thermometer at 32° . A few days later, a memorial cairn was erected on the north coast of Port Foulke, and a record of the expedition deposited.

On the 12th the schooner was free after a little more than ten months at Port Foulke, during nine of which they were completely frozen in. The thickness of the ice was nine feet, and seven of these were formed before the middle of February, when the boat became lodged in an ice-cradle. The severe temperature of March only added two inches to the depth of ice, the coat already formed serving, as is well known, to pro-

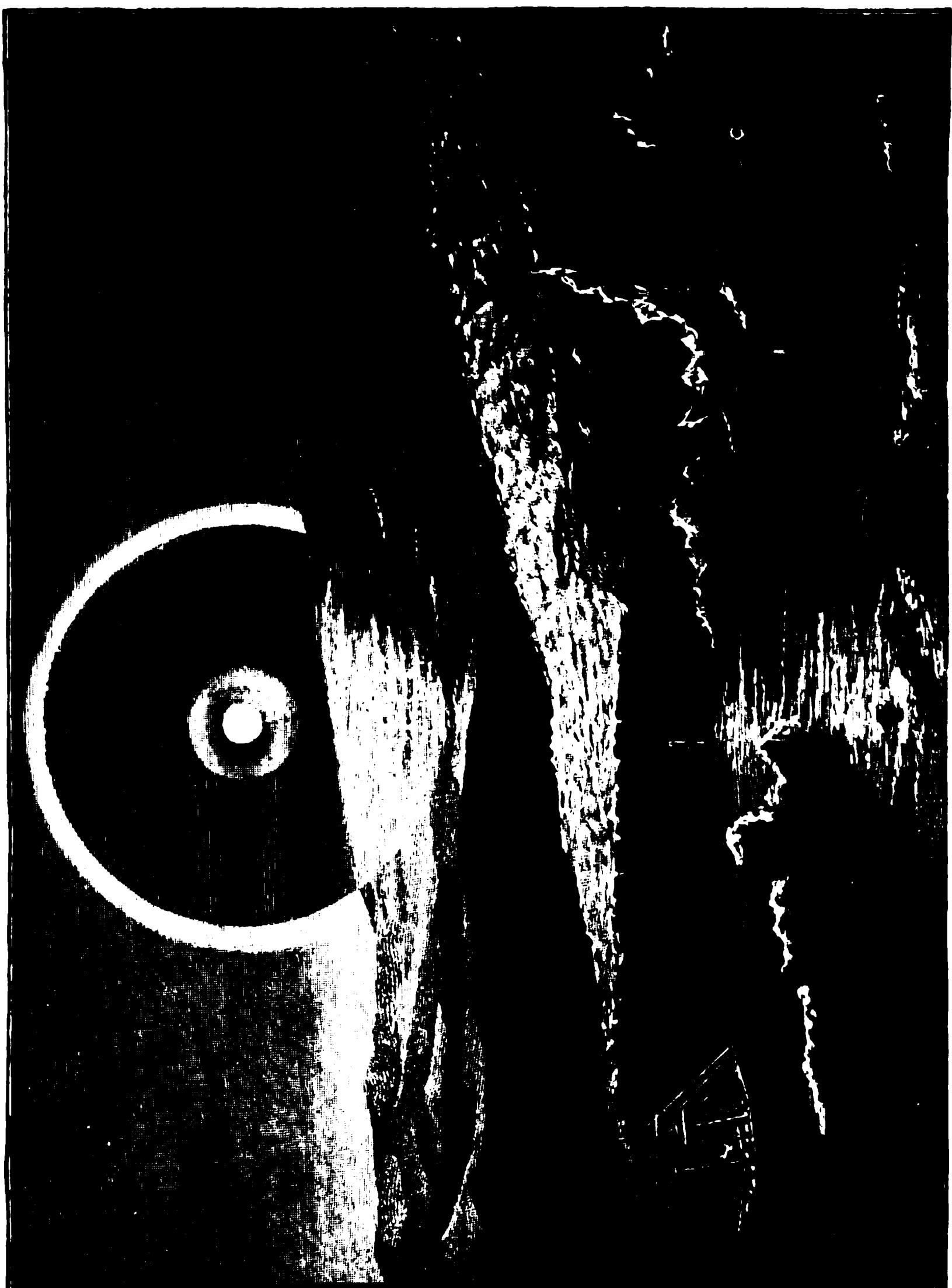
tect water as well as land from being frozen to an incalculable depth. "I have never seen an ice-table," says Hayes, "formed by direct freezing, that exceeded eighteen feet." On the 13th they took leave of the Esquimaux; and on the 14th set sail for Cape Isabella; but the ice-pack baffled him in 1861 as it had in 1860; and after several days' effort and detention, they were only able to reach Gale Point, ten miles below, but the cape itself could not be passed, "a line of solid ice extending in a somewhat irregular curve up the sound to a few miles above Cairn Point. As



POINT ISABELLA.

well use a Hudson River steamboat for a battering-ram as this schooner, with her weakened bows, to encounter the Smith Sound ice." But Hayes would not be baffled of reaching Cape Isabella, and so set out in the whale-boat from Gale Point, to find it, as he says, "a ragged mass of Plutonic rock, looking as if it had been turned out of Nature's laboratory unfinished, and pushed up from the sea while it was yet hot, to crack and crumble to pieces in the cold air. Its surface is barren to the last degree; immense chasms or canyons cross it in all directions, in which

WHALE SOUND.



there was not the remotest trace of vegetation—great yawning depths with jagged beds and crumbling sides—sunless as the Cimmerian caverns of Averno." At Gale Point were observed traces of a recent Esquimaux encampment, giving the impression that the coast had still some remnants of native tribes.

Some days later they anchored in Barden Bay off the native settlement of Netlik, on Whale Sound. Here Hayes made an extensive survey, naming islands, capes, and bays, and the Tyndall Glacier. At Iteplik, farther on, whence the Esquimaux had gone to him at Port Foulke, he found nine families, numbering thirty persons, remaining. They next set sail through Melville Bay to the east, and on the 12th of August reached Horse's Head, and three days later the harbor of Upernavik. Here they were startled by "the news from home." "Ah," said the first arrival aboard, "de Sout' States dey go agin de Nort' States, and dere's plenty fight." Their first mail received here, brought the history of events down to near the end of March, 1861, but the intervening five months, with their rapid succession of startling events, were still a blank. And so Hayes spent some days in exploring "a magnificent glacier nine miles wide, which discharges into a fiord named Aukpadlatok, about forty miles from town." Four days after leaving Upernavik, they anchored at Goodhaven on Disco Island; and in a few days left that safe harbor for Davis' Strait. Through this they were driven by "a regular equinoctial storm. Every stitch of canvas was ripped up but the little rag of a topsail, under which we scudded before the gale through four days, running down in one four-and-twenty hours two hundred and twenty miles of latitude." Off Labrador the wind changed to the west, and the vessel was hove to, when they "were caught amidships by the ugliest wave they had ever seen. The schooner shivered all over as if every rib in her little body was broken." Thus she lay for three days, drifting two hundred miles out of her course. When the storm abated they made for Halifax, Nova Scotia, where they received the kindest attention from citizens and officials. Here they got a second installment of "the news from home," sufficient to take away the breath, and they became impatient to reach their friends. In four days from Halifax they

reached Boston, Oct. 21, 1861, having been absent fifteen months and fourteen days. Hayes at once tendered his services and his schooner to the government; and he entered the United States' service as an army surgeon, taking charge of the hospital at West Philadelphia, which he built. He made another voyage to Greenland in 1869, chiefly in the interest of Bradford's photographic enterprise, but not without adding something to his previous explorations and surveys. He afterward spent five years in political life as member of the Assembly of Pennsylvania; and also won distinction as a lecturer on his favorite topics—the Open Polar Sea and Arctic Exploration. He died Dec. 17, 1881, in his fiftieth year.



CHAPTER LXVIII.

GERMAN EXPEDITION UNDER KOLDEWEY—THE PLAN OF DR. PETERMANN—EULOGY ON KOLDEWEY—DEPARTURE FROM BREMERHAVEN—SEPARATION FROM THE HANSA—A SERIES OF DANGERS—WRECK OF THE HANSA—THE COAL HOUSE—THE DRIFT ON THE ICE—AN ALARM—DANGER FROM STARVATION—ARRIVE AT FREDERICHSTAHL—AT HOME.

Among the nations that in recent times have taken part in the efforts to reach the Pole and solve its mysteries, the German Empire has been prominently persistent. It is true, the expeditions organized and sent out under its auspices have not been so numerous and pretentious as those planned and executed from time to time by Great Britain and America, but they have evinced a thoroughness of preparation and a skillfulness of conduct, second to none; and their failures have been in places and under circumstances where failure was neither a disgrace nor a sign of weakness or inefficiency.

The so-called "First German Arctic Expedition," under Karl Koldewey and its renowned originator, Dr. Petermann, had been welcomed back, though without results of great importance; and it was on the occasion of its formal reception that the idea of a second voyage for a like purpose was first conceived. Preliminary conferences took place between Capt. Koldewey, Dr. Petermann, Dr. Breusing and others, the result of which was that the dispatch of a new expedition became only a question of ways and means. The rough sketch of a plan was not long wanting. This plan provided that the expedition should consist of two parts: That a steamer should land on the east coast of Greenland, from whence it should push forward into the center of the Arctic regions; and that another should from any point between Greenland and Spitzbergen seek to attain the highest latitude possible. This plan, however, proved too ex-

tended for the limited means of those specially interested. By common consent the latter portion of the proposed scheme was abandoned, and the attention directed to East Greenland.

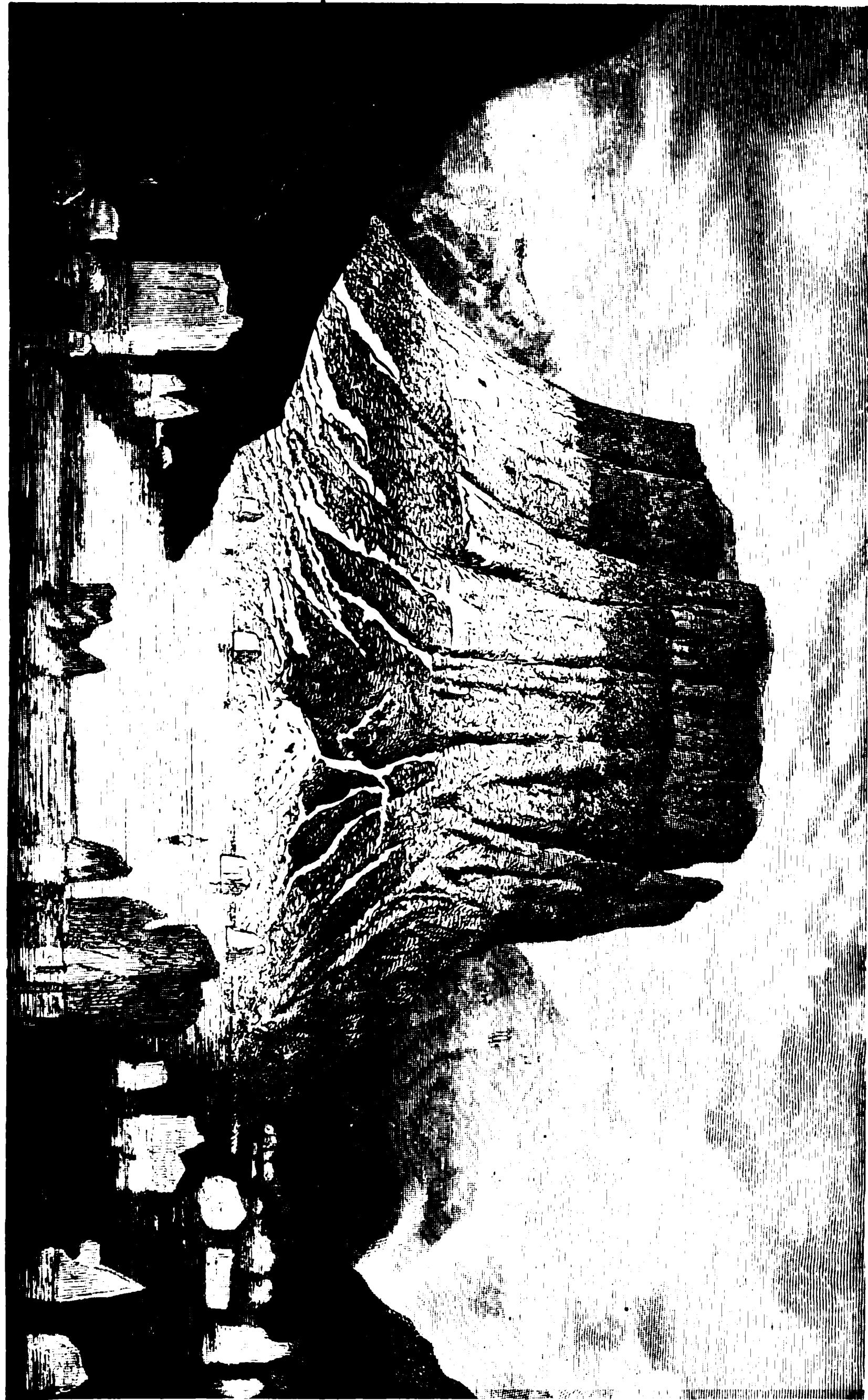
A communication dated the 8th of March, 1869, brought the proceedings to the knowledge of the friends of the expedition. The plan was now nearly as follows: "That the expedition should consist of a newly-built screw-steamer, and of the sailing yacht Greenland, a ship of the pioneer journey of a year previous; that the end and aim of the same should be discovery and exploration in the Central Arctic region, from 74° north latitude upward, the East Greenland coast being the basis. The Greenland, acting as consort and transport ship, should return in the autumn of the same year; but the return of the chief ship should not take place until late in the autumn of 1870, after their intended wintering. That the aim of the expedition should be scientific as well as nautical; the latter department being under the command of Capt. Koldewey, who the year before had proved himself so able in every respect, and whose character for courage, perseverance, and self-sacrifice in the cause, called for unhesitating confidence."

Great diligence was used in making collections for defraying the expenses of the enterprise, and most of the towns of Germany responded liberally to the call for funds. The new steamer was called the Germania, and was a model in size and strength for the purpose for which it was to be used. Objection being made to the Greenland as being too small, a larger ship, the Hansa, was chosen, and like the Germania, provisioned for two years.

The scientific members of the expedition to ship in the Germania were the following: Dr. Karl Börgen; Dr. R. Copeland, an Englishman, educated in Germany, and an associate of Dr. Börgen in scientific investigation; Lieut. Julius Payer, whom we shall hereafter know as the commander of a separate expedition, and Dr. Pansch, surgeon to the ship's company; Dr. Buchholz, surgeon to the Hansa, represented the department of zoology, anthropology and ethnology, and he was joined by Dr. Gustavus Laube, of Vienna.

The plan of the construction of other Arctic ships has been given

DEVIL'S CASTLE, EAST GREENLAND.



in detail in the narration of previous voyages, and the particulars of the preparations are so alike in all expeditions, that to give them here would involve a needless and tedious repetition. It is sufficient to say that no mechanical skill was spared in the building of the Germania, and in the provisioning of both the ships, attention was particularly paid to completeness and plentiful supply, as well as to the good quality of every article.

The final departure of the expedition took place from Bremer-haven, on the 15th of June, 1869, in the presence of His Majesty, the King of Prussia, whose warm interest in this great national undertaking showed itself in a manner never to be forgotten. The two vessels sailed up through the German Ocean together, and did not separate until Jan Mayen Island had been reached and passed, and the Arctic Ocean actually entered. On the 15th of July the Germania entered the "ice circle" of Greenland, and began to look for the barriers which she had come hither to defy. At length a practiced ear might have heard a subdued roar, growing louder by degrees as the ship's longitude became more and more westerly.

"Nearer and nearer," says Koldewey's account, "comes the rushing noise. Every man is on deck; when, as with the touch of a magic wand, the mist divides, and a few hundred yards before us lies the ice, in long lines, like a deep indented rocky coast, with walls glittering blue in the sun, and the foaming waves mounting high, with the top covered with blinding white snow. The eyes of all rested with amazement on this grand panorama; it was a glorious but serious moment, stirred as we were by new thoughts and feelings, by hopes and doubts, by bold and far-reaching expectations."

The separation from the Hansa, which had been a source of anxiety for several days, terminated on the 18th, when the meeting of the vessels was celebrated by a joyful firing of guns, and ringing of the ships' bells. It was found that the Hansa as well as the Germania had been several days in the ice. Indeed, a glance at the log-books of the former vessel showed that since their separation the two ships had never been far apart, that they had taken the same course to the ice, and that noth-

ing but the thick mist which had prevailed had prevented one from seeing the other. In case of another separation Sabine Island was appointed as a place of rendezvous. After some further consultation on the part of the officers as to their future course, the two vessels began working their way together to the westward. Through a misunderstanding of signals, the two ships became once more separated, and never met again. Let us leave for a time the Germania, sailing under the orders of Capt. Kol-dewey, and follow the fortunes of the ill-fated Hansa.

Meeting with impassable ice to the west, the Hansa steered to eastward out of the ice, and began afresh. Having reached open water a second attempt was made at penetrating to the coast in the latitude corresponding with the instructions. Until the 10th of August the Hansa experienced good weather, and with a favorable wind sailed along the edge of the ice in a northerly direction, until reaching the desired latitude, it was once more thought best to attempt the desired coast. But disappointment again met the crew. After sailing westward one night, they found themselves on the morning of the 14th hemmed in again on all sides; fresh ice formed between the floes, besides filling up every passage, so that the Hansa was fast again; and from this time forward until the complete blocking up of his vessel, the captain's log-book unfolds a series of troubles, dangers, and reverses.

For a long time it was hoped that the floes would part and allow the unfortunate craft to make toward the coast. Land could be seen at a distance of not more than thirty-five miles, and a boat journey over the ice and through such channels as occasionally presented themselves, seemed to confirm for a time that slender expectation. In the meantime, measures were taken to abandon the ship if it should become necessary. The sailors' winter clothing was distributed; the boats were made ready, and their respective crews told off; and the plan of their winter house was discussed in view of the possibility of being obliged to resort to one.

Their worst fears were soon realized. On the 19th of October the pressure of the ice upon the Hansa began to be tremendous. Huge ice-blocks forced themselves under her bow, and though these were crushed by the iron sheeting, they raised the forward part of the ship seventeen

feet out of water, or rather out of its former position in the ice. The conviction soon seized the minds of the crew that the Hansa must break up, and the clothing, nautical instruments, journals, and cards, were in all haste taken over the landing-bridge.

The ship soon began to leak, and it was plain that it must be abandoned. All the provisions that could be secured from the wreck, together with fuel, medicine, cigars, and whatever could be easily moved in their present importunity, was dragged over the ice to a safe distance from the sinking vessel. A house had already been constructed from pieces of coal, and to this, their only resort, they were obliged to repair.

In the meantime the floe on which their residence was built was drifting steadily to the south. The routine in the black house soon became established, and as it closely resembled that on board ship, the lonely sailors readily adapted themselves to it. Care was taken to make the little settlement as conspicuous as possible in order that it might be seen by any Esquimaux who should happen on the coast. The food was lengthened out by the shooting of an occasional walrus, and free use of this article of diet was effectual in preventing scurvy, from which the party continued remarkably exempt.

The first days of January were destined to bring sad changes for the exiles on the ice. "On the 11th," says the narrator, "there were heavy storms from the northeast, with driving snow. At six in the morning Hildebrandt, who happened to have the watch, burst in with the alarm, 'All hands turn out!' An indescribable tumult was heard outside. With furs and knapsacks all rushed out. But the outer entrance was snowed up, so to gain the outside quickly we broke through the snow roof of the front hall. The tumult of the elements which met us there was beyond anything we had already experienced. Scarcely able to leave the spot, we stood huddled together for protection from the bad weather. Suddenly we heard, 'Water on the floe close by!' The floe surrounding us split up; a heavy sea arose. Our field began again to break up on all sides. On the spot between our house and the piled up store of wood, which was about twenty-five paces distant, there suddenly opened a large gap. Washed by the powerful waves, it seemed as if the piece just broken off

was about to fall upon us. * * * The community was divided into two parts. We bade each other good-bye with a farewell shake of the hand, for the next moment we might go down. Deep despondency had taken hold of our scientific friends; the crew were quiet, but desperate. It was a miracle that just that part of the floe on which we stood should from its soundness, hold together."

As it was, the house was shattered in fragments, and a temporary bivouac in the boats had to be experienced. A new house had to be constructed for temporary use; the boats were drawn nearer the middle of the floe, and all exigencies, so far as possible, provided for. So for several months the drift to the south continued; the only hope of release being in the boats, when the influence of the now rising sun and the southern latitude should open a channel in the rugged pack.

The month of May at last arrived, but to the weary watchers on the ice release seemed as far off as ever. From the spot where the Hansa had foundered, in 71° north latitude, they had moved to 61° —a distance of nearly 700 miles. They were startled to find that only six weeks of provisions remained, and that unless efforts were put forth to reach some inhabited spot they must expect one by one to drop away from starvation.

A small island called Illuidlek, lay about three miles away, and to this it was determined to remove, unless there should be some immediate and unlooked for change in the ice. To this point, with much labor and many stoppages, they succeeded in dragging the boats and scanty stores. Here they spent some days looking in vain for traces of life, and the habitations of the Esquimaux whom the old voyager, Graah, had found here. Existence could not be sustained here for any protracted period. Even the animals, both on land and sea, seemed shy, and unwilling to minister to their necessities. Moreover, there was now open water sufficient to warrant embarking in the boats, and at any rate death upon the sea was no more terrible than slow starvation upon a rocky, barren islet. Accordingly, on the 6th of June the boats were launched, sails were extemporized, and the party were once more in motion, glad in the consciousness of at least making an effort to save their lives.

Their aim was Frederichstahl, the nearest colony on the southwest coast of Greenland, but they hoped soon to meet one or the other of the Esquimaux seal-boats searching the Fiord. No such fortune, however, awaited them, though the increasing warmth and signs of vegetation along the coast as they sailed by, gave promise of comfort and plenty in the near future.

Rounding Cape Farewell they came in sight of the long wished-for Bay of Frederichstahl on the 13th of June. The little settlement situated on this bay was the seat of the most southerly of the Moravian missions of Greenland. In this far-away place, self-sacrificing men from the Fatherland had settled for a life of isolation and toil among the ignorant and almost savage natives of this frozen continent. How the sight of their homely red houses cheered our band of weary voyagers, and how sweet to them sounded their own mother-tongue, spoken by warm-hearted countrymen!

From this point the troubles of our voyagers ceased. They were soon able to procure passage in a Danish vessel to Copenhagen. From this city they sped homeward by rail, and once more trod German soil on the 3d of September.



CHAPTER LXIX.

THE GERMANIA IN EAST GREENLAND—THE BIENENKORB—CLAVERING ISLAND—SHANNON ISLAND—A QUESTION—A SLEDGE-JOURNEY—FLIGELY FIORD—KUHN ISLAND—THE GERMANIA MOORED FOR WINTER—RELICS OF A DECAYED COMMUNITY—ATTACKED BY A BEAR—WIDE EXPERIENCE WITH ANIMAL LIFE—AN ENCOUNTER WITH WALRUSES—THE GERMANIA BECOMES FREE—RETURN TO GERMANIA.

Let us now retrace our steps to the northward, where we left the mania struggling with the ice of East Greenland, and compare her experience with that of her unhappy consort.

To be separated for a short time from the sister ship under existing circumstances, caused no uneasiness; so that at noon of the day that the Hansa disappeared in the fog, the Germania set all sail, but soon striking upon ice, was obliged to turn. The horizon was eagerly scanned for the Hansa, but without success. A whaling vessel, however, was discovered, and this last opportunity of sending letters home was eagerly embraced. The ship was found to be the Bienenkorb of Bremerhaven.

"On her deck," says the narrative, "confined in a large cage, was a bear and her two cubs; fortunately for them, on board a whaler they were not likely to want for food. One would think that a creature so powerful and active could never be taken alive, but on its hunting expeditions among the drift-ice, it frequently trusts itself to the water, and here, in spite of its endurance, man is more active and clever, and with a well-managed boat, a lucky cast of the noose generally falls on the neck of the swimming bear, when, half-dragged and half-swimming, he is hoisted on deck like any other animal, the noose round its neck being a guarantee for its good behavior. On their return they are generally sold to some menagerie or zoölogical garden, the price of a full-grown bear being 100 thalers (75 American dollars)."

Parting company with the *Bienenkorb*, the *Germania* now sought to reach the coast of Greenland. Her path was a tortuous one, and full of danger. The day-book of the captain shows that at the beginning of the journey, after leaving the *Hansa*, strong northwesterly winds prevailed, which of course delayed the vessel's progress toward the coast. The easterly winds, on the other hand, drove the ice toward the shore, which thus became so packed that it was impossible to reach the mainland. Several weeks were spent in meeting these obstacles, but the efforts of the ship's company were at last rewarded, and on the 5th of August they planted their flag on Greenland soil.

The group of islands which they had now reached, known as the Pendulum Islands, were first discovered and appropriated by Clavering, in 1823. [See voyage of Clavering.] Far to the north was seen Shannon Island, the largest of the coast islands of Greenland, while southward lay Sabine Island, only a few miles from the mainland. Along these islands the expedition hoped to make its way northward, after having, according to their instructions, sought for and marked the position of Sabine's observatory.

The condition of the ice was here first distinctly seen. The straits between Sabine Island and the mainland, and also between the several islands, were completely blocked with what appeared to be all land ice. Further on, between Shannon Island and the mainland, as far as the eye could reach, the land was firm, and the conclusion was soon reached that there would be no breaking up that year. Along the coast, then, advance was impossible, and the only practicable way remaining was along the eastern side of Shannon Island.

"The question," says Koldewey, "has been raised several times, especially among inland people, as to why, being unable to advance along the land-ice, I did not re-enter the pack and work my way through it northward, and, in a higher latitude, again try to reach the coast. This is opposed to all experience; it has long been known that in a stream of heavy ice, in fact, in the so-called pack, never, nor at any place, with the strongest and best steamer, has any considerable progress been made without the support of the coast, or the coast islands. Had I wished to

have reached the coast at a more northerly point, I should have had to penetrate the ice-barrier, again to steer along the northern border, and force my way into the pack once more in 78° . Such a proceeding would certainly never have been followed by the desired result, and it would have been unjustifiable to give up a basis reached with so much trouble, to follow a phantom."



A VILLAGE IN SOUTHEAST GREENLAND.

After some fruitless attempts to make their way along the coast in the Germania, the party returned and found winter quarters on Sabine Island, a few miles to the south and west of Pendulum Island, the land which they had at first reached. It was now planned to devote the winter to sledge-journeys. The first of these was organized at once, and was ready to start on the 14th of September. As on the departure from

home the general expectation was that the greatest and most substantial discoveries must be made with the ship, their instructions spoke only of probable glacier excursions to the interior of the country, and not of extensive sledge-journeys along the coast and the banks of the Fiord. For the particular necessities of these journeys, therefore, no provision was made at the outfitting in Bremen, and the sledge apparatus (tents, coverings, and so on) was not quite what was needed.

They had learned from experience during the summer that the round tent with a pole in the center, which they had brought from Bremen, was not practically useful; it was, therefore, changed into a four-cornered one, and provided with a roof. At each corner a pole was placed perpendicularly, and fastened by ropes, held and propped up with stones. Their further apparatus consisted of necessary woolen coverings (for they had not yet taken to furs), provisions for eight days, of instruments notably the theodolite, that essential in all coast surveys, and the customary barometer and thermometer.

The sledges, which carried about six hundred weight, were drawn by six men, the Captain, First Lieut. Payer, Trauwitz, Krauschner, Kleutzner, and Ellinger, traveling with comparative ease over the almost snowless ice. Fligely Fiord and Kuhn Island were to constitute the objects of their investigations, and these points were first sought. "The shore of the Fiord," says Copeland, "was surrounded by beautiful mountain-chains—to the north gneiss—and granite cliffs at the foot of which were slopes covered with soft grassy vegetation; to the south rose ice-crowned rocks, the highest of which (we will call it Domberg) was certainly more than 3900 feet high. Reindeer came from all sides of the strand in a state of wonder; but this time we withheld the desire to hunt, in order to lose no time. Only once was the journey interrupted by a slight topographical incident. A bear which came near us we frightened away by shouting, after which Kleutzner fell through the ice; he was pulled out, and had to cross a long broad breach."

Fligely Fiord was explored and surveyed up to where its inland boundary becomes a part of the rugged mainland beyond. On Kuhn Island Lieut. Payer noticed a stone of exceedingly light color, which on

the south side of the island formed solid overhanging crystals, to at least 2000 feet high. Leaving the sledge, to his great astonishment he stumbled upon a layer of coal, its strata alternating with sandstone. Further investigations proved the existence of the carboniferous deposit in large quantities—possibly a useful factor in the future development, or subjugation, of East Greenland. The party soon returned to the ship, having walked a distance of 133 miles.

The months of September and October were spent in making preparations for the coming winter. The Germania was released from the icy bands which the early fall had cast about her, and was drawn closer to the body of Sabine's Island, where, moored in a convenient bay, she could fearlessly withstand the shocks common to vessels wintering within the Arctic circle. On the 11th of October the ship was surrounded with a wall made of blocks of ice frozen together, and a sort of break-water or boundary to the little harbor was constructed of the same material.

The winters spent by most American and British explorers in Arctic regions have been somewhat ameliorated by companionship with natives. The consciousness that other human beings can and do live in these desolated regions is a great source of comfort to sojourners in the north, especially when this knowledge is gained by actual contact with the denizens of the ice. Up to this point, however, our explorers had seen no trace of natives, nor indeed any signs of their having formerly occupied this portion of Greenland. The conclusion, therefore, was that the Esquimaux had either deserted their former abodes, or had become extinct. Clavering, in 1823, had found an Esquimaux settlement on the island bearing his name, but both natives and their habitations had now disappeared. A few skeletons and rude implements alone remained to tell the story of the decayed community.

Fall, winter, and spring found the voyagers usefully employed in exploring and surveying the fiords and gulfs of East Greenland, in taking magnetic readings, and in compiling tabulated statements of their scientific discoveries. The absence of dogs and reindeer made their labors very severe. Supplies, tents, instruments, all the paraphernalia of an

Arctic sledge-journey had to be dragged through the snow by the men themselves, the officers participating in this labor with appropriate enthusiasm. In this way several degrees of the eastern wall of the continent of Greenland were accurately explored and laid down.

It is probable that no expedition has had so varied and thrilling an experience with the animal life of the north as the party of our present narration. Almost no journey was undertaken without more or less danger from the immense bears which inhabit these regions, and sometimes the creatures approached the vessel itself with great boldness. An incident occurred on the 6th of March, in which a valued member of the expedition nearly lost his life from the boldness of one of these beasts.

"We were sitting," writes Lieut. Payer, "fortunately silent in the cabin, when Koldewey suddenly heard a faint cry for help. We all hurriedly tumbled up the companion-ladder to the deck, when an exclamation from Börgen, 'A bear is carrying me off,' struck painfully on our ears.

"It was quite dark; we could scarcely see anything, but we made directly for the quarter whence the cry proceeded, armed with poles, weapons, etc., over hummocks and drifts, when an alarm shot which we fired into the air, seemed to make some impression, as the bear dropped his prey, and ran forward a few paces. He turned again, however, dragging his victim over the broken shore-ice, close to a field which stretched in a southerly direction. All depended upon our coming up with him before he should reach this field, as he would carry his prey over the open plain with the speed of a horse, and thus escape. We succeeded. The bear turned upon us for a moment, and then, scared by our continuous fire, let fall his prey.

"We lifted our poor comrade upon the ice to bear him to his cabin, a task which was rendered difficult by the slippery and uneven surface of the ice. But after we had gone a little way, Börgen implored us to make as much haste as possible. On procuring a light the coldest nature would have been shocked by the spectacle which poor Börgen presented. The bear had torn his scalp in several places, and he had received several injuries in other parts of his body. His clothes and hair were saturated

with blood. We improvised a couch for him in the rear of our own cabin, as his own was not large enough.

"The first operation was performed upon him on the cabin table. And here we may briefly notice the singular fact that, although he had been carried more than one hundred paces with his skull almost laid bare, at a temperature of —13 Fahrenheit, his scalp healed so perfectly that not a portion was missing." Dr. Börgen's youth and vigorous constitution soon enabled him to throw off the evil effects of the shock to which he had been subjected, but the whole party from that time were careful not to wander forth alone in the dark.

. The observations of the party were carried on with the characteristic German accuracy. Particular attention was given by the naturalists to the animal life both of land and sea, as well as to the scanty flora exhibited among the barren rocks on which they had fallen. Space fails us to give in detail the results of these investigations, but they form a very important chapter in the natural history of the north. Actual contact in the hunt, with much of the animal life, gave them an opportunity to generalize from real observation upon the characteristics and habits of the northern fauna. Bear, musk-ox, hare, fox, lemming, and sea-horse—all passed under the scientific knife of Pansch and Börgen, and the fact that their little stock of provisions must be lengthened in some original way, made the opportunities for these investigations more frequent than they would otherwise have been. Indeed, these animals were sought, not more for scientific purposes, than for a more obvious and substantial utility.

The encounters with many of these animals are said to have been attended with the greatest danger. The appearance and mode of warfare of the walrus is graphically described by an eye-witness: "If any creature deserve the name of monster, it is the walrus. It is from nine feet six inches to sixteen feet six inches in length, weighs about two thousand pounds, and its skin is three and a half inches thick (a sort of massive coat of mail), with large eye, and a head of infinite ugliness.

"Should one of these monsters see a boat, it raises itself, astonished, above the surface, utters at once a cry of alarm, swimming toward it as quickly as possible. This call brings up others, awakens the sleepers

AN ENCOUNTER WITH WALRUSES.



which the boat had carefully avoided, and in a short time the vessel is followed by a number of these monsters, blustering in apparent or real fury in all their hideousness.

"The creatures may possibly be only actuated by curiosity, but their manner of showing it is so ill-chosen that one feels obliged to act on the defensive. The bellowing, jerking and diving herd is now but a short distance from the boat. The first shot strikes, thus inflaming their wrath, and now begins a wild fight, in which some of the black sphinxes are struck with axes on the flippers with which they threaten to overturn the boat." On the ice, however, the sea-horse falls an easy victim to stratagem, as his means of locomotion on this element are very limited.

As spring advanced, the crew of the Germania made preparations for their homeward journey. The vessel, so long a prisoner in icy chains, became free about the first of July, and the engine being repaired as well as circumstances would permit, some cruising was done as a finishing touch to the work of the season. After examining Shannon Island and vicinity they departed for Germany, where they arrived on the 11th of September, after an uneventful voyage of three weeks. They found their countrymen at home wild with excitement on account of recent victories over the French, but none the less glad to welcome the sailors, who had shown perhaps as much daring in facing the stern weather of the north, as the regulars had exhibited before the guns of the enemy.

The light thrown on the Arctic question by the voyages of the Hansa and Germania seemed to justify the following conclusions: Uninterrupted open coast water along the coast of East Greenland had been proved not to exist; and it was shown that the coast water was dependent merely on local circumstances. East Greenland was proved not to form a suitable basis for reaching the North Pole, even setting aside the possibility of reaching a higher latitude by ship along the coast in more favorable years. On the other hand, by inquiries into the geology, natural history, and climate of the country itself, and by the investigation of the large fiords and their extent north and south, a new basis for promoting Arctic discoveries had been created, promising rich results, which may eventually assist in a substantial way in solving the Arctic problem.

CHAPTER LXX.

HALL'S SECOND VOYAGE—DISCOVERS RELICS OF FRANKLIN—THE POLARIS—OFFICERS SELECTED FOR THIRD VOYAGE—EBIERBING AND TOOKOOLITO—A DIFFERENCE OF OPINION—THE HIGHEST POINT—LAST WORDS PENNED BY HALL—SLEDGE-JOURNEY TO THE NORTH—SICKNESS AND DEATH OF HALL—COMMENTS ON HALL—THE POLARIS IN DANGER—NINETEEN PERSONS LEFT ON THE ICE—A DRIFT OF NEARLY TEN DEGREES.

Hall undertook his second voyage to the Arctic regions in 1864, sailing from New London, Conn., in a whaling ship commanded by Capt. Buddington. His only companions were Ebierbing and his wife Tookoolito, the Esquimaux who had accompanied him to America on his return from his first expedition. It was his ambition to reach King William's Land and explore it. As soon as Hudson's Bay was reached he landed, pushed north as far as Hecla and Fury Bay, after which he entered the land of his search. He remained four winters in King William's Land, living with the natives during the entire time, principally near Repulse Bay. He made himself familiar with their habits and customs, and became proficient in their language. From all that could be learned from the Esquimaux he became thoroughly convinced that the greater portion of Franklin's party had died of starvation in that country, but few of them succeeding in reaching the mainland. Many relics of the ill-fated Franklin Expedition were found by him and brought to America, but the most diligent and persistent search failed to discover any documents which could shed any light upon the mystery, from which it is supposed that when compelled to hastily abandon the ships the records were left behind and lost; and that the ships were left in a hurry, is evidenced by the fact that no stores or provisions have ever been found. It did, however, appear reasonably certain that Franklin had succeeded in passing

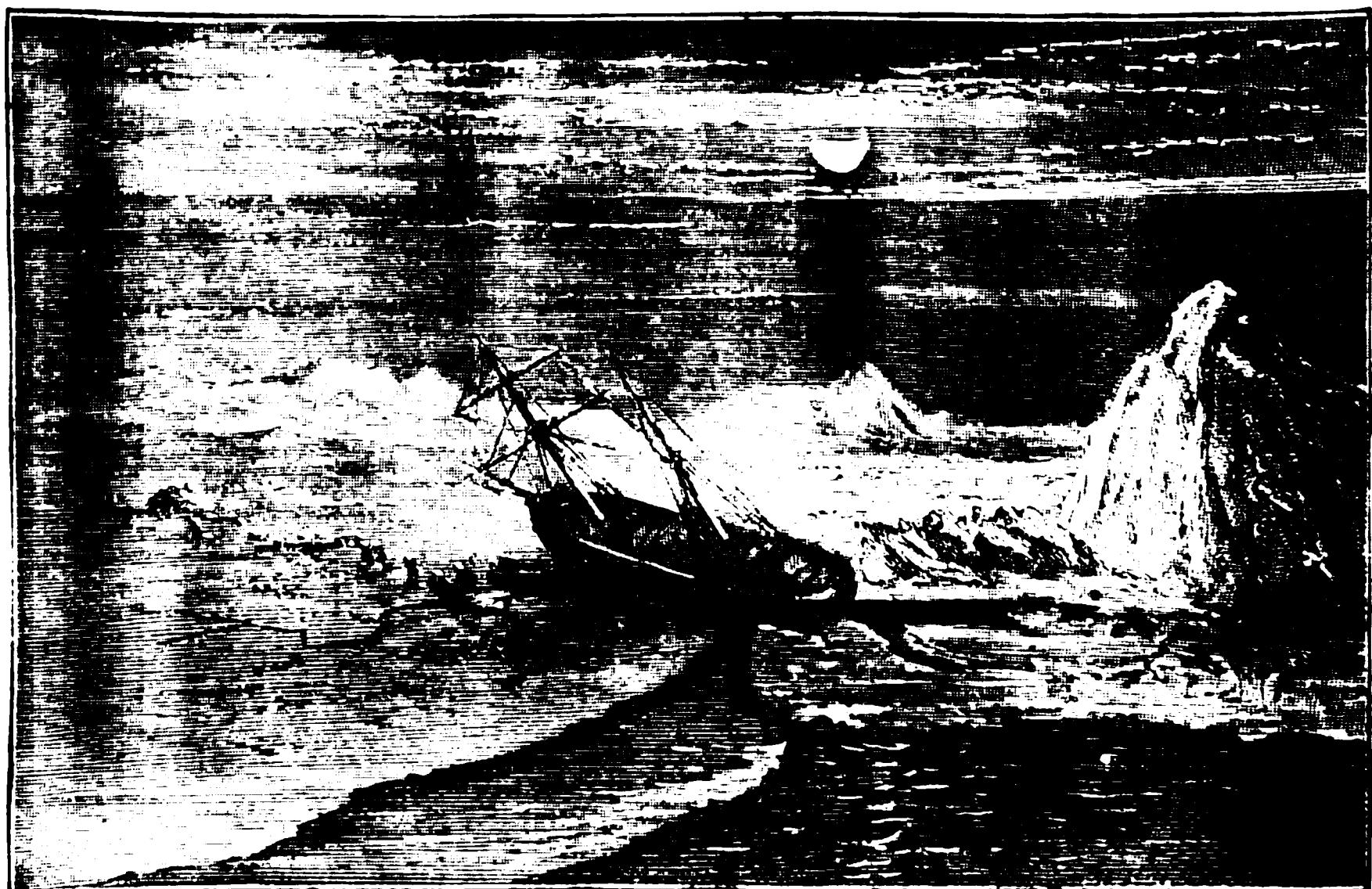
as far westward as any point since reached, and that to his enterprise is really due the discovery of the much sought Northwest Passage.

Of Hall's second expedition but little has ever been written—nothing by himself. He had armed himself with full and complete notes, which he intended to furnish the public upon the completion of his third voyage and the discovery of the Pole, of which he felt confident.

After his return home he worked laboriously to prevail upon the government to fit out another Arctic expedition, and after months of toil his efforts were finally successful; then was placed at his disposal everything which thoughtful humanity could devise to insure the success of his undertaking. The schooner-rigged steamer Periwinkle, four hundred tons burden, was purchased, and fitted up in such a manner as to make her equal to the new service required of her. To her sides were added six inches of solid oak planking, and her bows were transformed into an almost solid mass, encased in iron which ended with a sharp cut-water. In order to better avoid the dangers sure to be encountered in the ice the propellor was so arranged that it could easily be removed from its place, and deposited on deck. In case of accident extra machinery and rigging were provided. To meet the special service in which they were to engage the boats were built of superior strength, and in order that it might be easily transported over ice when it intervened between open waters, one, with a capacity of four tons, was built, which weighed only two hundred and fifty pounds. Everything which could be thought of was provided for the comfort, safety, and success of the officers and men about to engage in so difficult and perilous an expedition in the most cheerless and deserted region ever penetrated by man. As soon as the vessel had been refitted she was very appropriately re-christened the Polaris—"The Pole Star."

As soon as the expedition became a settled fact, Capt. Hall at once commenced selecting his officers and crew. The expedition was to be under his immediate command. His eight years' experience in the Arctic regions, a knowledge of the Esquimaux language, and the happy faculty of maintaining strict discipline without losing popularity among his men, certainly qualified him for the position. The sailing-master,

Sydney O. Buddington, had made eleven whaling voyages, covering a period of thirty years, and was in command of the George Henry when Hall made his first trip in her in search of Franklin. George E. Tyson was selected as assistant navigator; Hubbard Chester, first mate; William Morton, second mate, who twenty years before had been Kane's best man, and who discovered what Kane then believed to be an open polar sea, but which has since proven to be merely an expansion of Smith's Sound; Emil Bessel, who was armed with high testimonials



HIGHEST POINT ACHIEVED BY THE POLARIS.

from Germany, was placed in charge of the scientific department, a position held previously in an expedition sent out by the Prussian Government. In addition to these were Emil Schumann, chief engineer; Frederick Meyer, meteorologist; R. D. W. Bryan, astronomer and chaplain; the Esquimaux Ebierbing, his wife Tookoolito, and their child "Puny," who was born to them after the death of "Butterfly" in this country. Ebierbing was to act as interpreter and hunter. In all capacities the crew numbered seventeen, about one-half of whom were Germans or Scandinavians. To this number, upon their arrival at Greenland,

was added a dog-driver, the Hans Christian of Kane and Hayes, with his wife and three children.

On June 29, 1871, the Polaris steamed out of New York harbor, and on the 13th of July reached St. John's, Newfoundland, where the governor and citizens extended to the expedition a hearty welcome. From St. John's they proceeded up Davis' Straits and arrived at Holsteinborg, Greenland, on the 31st. They remained there purchasing dogs, furs and other articles necessary until the arrival of the transport, Congress, with additional stores and supplies; after which, on Aug. 17, the journey to the Pole was fairly commenced. Stops were made at Upernavik and Kong-i-toke, for the purchase of more dogs, and on the 22d, Tessuisak was reached, the most northern permanent settlement on the globe, being in latitude $70^{\circ} 30'$.

When they were in Holsteinborg there was a difference of opinion between Hall and his scientific associates as to the course to be pursued. Hall's object was to reach the Pole, and to this he determined that all else should be subordinate. The dispute was adjusted, and Hall's view prevailed. During the three days they remained at Tessuisak he wrote a lengthy dispatch, showing that all the party were in excellent spirits, and full of hope, but this dispatch did not reach the United States for nearly a year.

On the 24th of August, 1871, the Polaris entered the regions of perpetual ice and snow, and from that time until the 30th of April, 1873, not a word was heard from the expedition by the civilized world. When the Polaris left Tessuisak she crossed the head of Melville Bay; passed Northumberland Island, going through Smith's Sound. Meeting with very little obstruction from the ice, she proceeded until she entered what Kane, Morton, and Hayes pronounced the Open Polar Sea, but which proved to be but an expansion of the sound, and to which the name of Kane Sea has since been given. In a week they reached their highest northern point, $82^{\circ} 29'$ by Hall's reckoning, and $82^{\circ} 16'$ by Meyer's calculation, a difference of about fifteen miles. On Aug. 30 the channel which had been named Robeson Strait, became blocked with floating ice, through which it was found impossible to make a passage. A small

bay was found close by named Refuge Harbor, in which Hall desired to take winter quarters. A consultation, however, decided against this, and soon after the ice became master of the situation, drifting the Polaris in a southerly direction for four days. The pack opened on Sept. 3, and a cove was made to the eastward, which set into the Greenland shore. An immense iceberg sheltered its mouth, and here it was determined to pass the winter. The cove is in latitude $80^{\circ} 38'$, and was named Polaris Bay, while the huge island of ice was designated Providenceberg. This point is about two hundred miles north of Kane's famous winter quarters, and about three miles north of the farthest point reached by Hayes.

The iceberg was used as a mooring place for the Polaris, an observatory was at once established, scientific work was commenced immediately, and Hall began preparations for a sledge journey in the direction of the Pole, which were soon completed. On October 10 he started with four sledges and fourteen dogs, accompanied by Chester, the mate, and the Esquimaux, Ebierbing and Hans. The expedition was planned to last two weeks, one to go north, and the other in which to return. On the evening of the 20th Hall wrote the last words ever penned by him, which were a communication to the Secretary of the Navy. It was a description of their voyage up to the time of settling down in their winter quarters, and was full of words of hope and confidence in the success of the expedition. A copy of the dispatch was placed in a pillar at Brevoort Cape, the northern headland of the bay, where the encampment was made on the 21st of October, 1871. The original, which was first read in Washington nearly two years after it was written, showed conclusively that he was confident of success, and, taken in connection with the one written formerly, refuted the charges that the equipment of the Polaris was incomplete. The expedition advanced north ten days, making six encampments and progressing seventy miles, or about $83^{\circ} 5'$ north. At that point there was an appearance of land still north of them, but a cloud prevented any observation which would definitely settle the matter. With the exception of a glacier on the east side of the strait, commencing in latitude $80^{\circ} 30'$ north, the mountains on all sides of Kennedy

Channel and Robeson Strait were free from snow and ice. Live seals, geese, ducks, musk cattle, rabbits, wolves, foxes, bears, partridges, lemmings, etc., were found in abundance. On the 13th, three days after they started, the Arctic night set in, the thermometer then being 7°.

The return trip was made rapidly, the party reaching the Polaris in four days. Hall was apparently in his usual health, but the change from an open air temperature of from 15° to 20° below zero, to the atmosphere of the cabin of 60° or 70° above, had a bad effect upon him, and



BURIAL OF HALL.

he partook of no refreshment except a cup of coffee. After indulging in a hot sponge bath, he retired for the night. In the morning his condition had changed for the worse, and he suffered much from a burning in the throat, and vomiting. He steadily grew worse for a week, and to the complications were added partial paralysis and delirium. He partially recovered and made an attempt to resume his work, believing that in a few days he would be completely restored to health. In this he was doomed to disappointment, as on the night of Nov. 8 he had a fresh attack, and was found in his cabin by Tyson, insensible, and breath-

ing heavily. That night he died, and three days later he was laid in a shallow grave in the frozen ground. The doctor pronounced the cause of death to be apoplexy, but Hall believed that poison had been placed in the cup of coffee which he drank, and in the delirium which preceded his death he imagined that every person who went near him was endeavoring to kill him. In regard to the matter, the commission reported without a dissenting voice that "the death of Capt. Hall resulted naturally from disease, without fault on the part of any one."

Physically, Hall was an exceptional man. His tenacity of life and powers of endurance were far above those of ordinary men. Above medium height, he was powerfully built, with broad chest, muscular limbs, and a large head. He was remarkable for his temperate habits, and after his return from his second expedition, after passing through the ordeal of an Arctic winter, a more robust man could not have been found. In the event of Hall's death the command was to fall upon Buddington. The winter was passed in the usual manner in that region, but no trouble was experienced from cold or want of food. The scientific observations were made constantly, and whenever it was possible to do so, the coast was surveyed. Whenever the opportunity was favorable, the Esquimaux hunted with success, and in this manner an abundance of skins was procured. The storerooms were also well filled with the skeletons of animals and birds, eggs, and many other curiosities of natural history. Nets and lines were set, but no fish could be caught. Considerable driftwood was picked up, which had evidently found its way there from a warmer climate.

A fierce gale from the northeast, about two weeks after the death of Hall, drove the Polaris from her moorings, and she dragged her anchors until she landed against the iceberg at the mouth of the cove, where she was secured, and remained there until June following. Later she was driven further on the berg by pack ice, where her prow remained fast, while the stern moved up and down, as influenced by the tides. This position strained the stern-piece and started a portion of the planking, so that when she once more settled in her native element it was found that she leaked considerably. However, when emptied once by the steam

pumps it was an easy matter to keep the hold clear by working a few minutes each hour.

Chester and Tyson, under orders from Buddington, undertook a boat expedition early in June. The orders were to go as far as they could up the shore. The expedition was a failure. One boat was crushed by the ice almost at the hour of starting. Its place was supplied by the canvas boat, but they failed to reach a point as far north as that reached by Hall in his sledge-journey. They remained there until the middle of July, 1872, but before the ice opened they were recalled by Buddington, and

the party was compelled to abandon the boats and make their way back to the steamer overland. Buddington had determined to return home as soon as the ice would leave him at liberty to do so, and under existing circumstances this seemed the wiser course, although it is not believed that had Hall been living he would have consented to it.



GRAVE OF HALL.

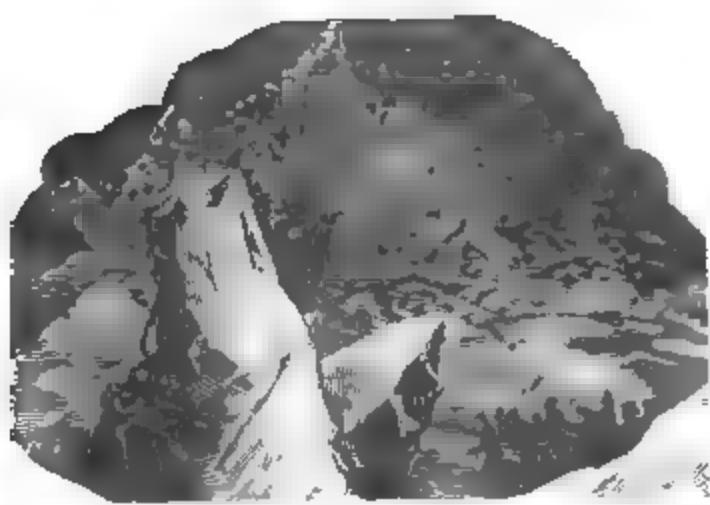
The ice left the Polaris free early in August, and she steamed slowly down the western shore. At the close of the first day she was fastened in the ice, and was in a very dangerous position. In latitude $80^{\circ} 2'$ she was made fast to a floe on the 16th, which drifted her hither and thither in Smith's Sound for two months, during which time not more than twelve miles were gained to the south, bringing her in the neighborhood of Northumberland Island, in latitude $79^{\circ} 53'$. Apprehending danger, provisions were carried on deck, a canvas shelter was erected on the ice, and every preparation made for a speedy abandonment of the vessel should it become necessary.

A very severe gale set in from the south on Oct. 15. The ice pressed in under the ship, and she was actually lifted out of the water and thrown on her beam ends on the ice. Provisions and stores were thrown over, and under orders about half the crew proceeded to carry them to a more secure place. The boats had been lowered, and in the middle of the night, in the midst of a terrific storm, the Polaris broke loose and immediately disappeared, leaving on the ice the nineteen persons who had gone there to save the provisions, at which they labored all night. In the morning they attempted to reach the shore, but failed. The Polaris was seen during the day under sail and steam, but soon changed her course, and disappeared. Another glimpse of her was caught a few hours later, but she again disappeared, and they very naturally believed that they had been purposely abandoned.

The hardships endured by those who were left upon the ice are beyond description. For one hundred and ninety-five days these nineteen men, women, and children drifted on floating ice through an Arctic winter, at the mercy of wind and water. The floe upon which they found themselves on leaving the ship was soon shattered, and the party found themselves distributed on different pieces of ice. They had two boats, with which they finally succeeded in gathering all upon the principal floe, where they remained more dead than alive, all night. Several attempts were made to reach the shore. The dogs and sledges were put in readiness, and each attempt to escape proved a dismal failure. When it was seen that there was no prospect of reaching the shore snow-houses were built, and everything possible was done to make the time pass comfortably and pleasantly. Land was seen for several days, but as the weather was unfavorable for taking observations, it could not be recognized. Sometimes they were in a condition bordering on starvation, and saw death staring them in the face. Cannibalism was thought of, but each time food was furnished in time to save them.

Meyer succeeded in taking an observation on New Year's Eve, and found they were in latitude $72^{\circ} 10'$, longitude $60^{\circ} 40'$; showing that in nine weeks they had drifted southward about five hundred and twenty-five miles. This was cheering news, though the thermometer stood

39° below zero. This was early in January. In February they encountered several storms, and very cold weather. The close of the month found them nearly out of provisions, but early in March they caught some seals, and had food in abundance. Immense icebergs surrounded the floe, and it was soon cracking and splitting with as much noise as is made by artillery and musketry in battle. Everything was broken in pieces, and the party stuck to the largest piece. On the last day of March an observation showed them to be in latitude 59° 41', and that during the last five days they had drifted at the rate of twenty-three miles per day. At that time their piece of ice had grown much smaller, and they were in clear water, no other ice being in sight.



CHAPTER LXXI.

ADVENTURES OF TYSON AND PARTY ON THE ICE — MEYER SWEPT AWAY — AN AGONY OF SUSPENSE — THE INEVITABLE GALE AGAIN—A SIGHT OF THE STARS—RESCUED AT LAST—EXPERIENCES OF THE POLARIS CREW—THE SHIP ABANDONED—ON THE OCEAN IN BOATS—PICKED UP—ARRIVE AT DUNDEE.

The month of April came in with a terrific storm, and it became evident to our adventurers that they must leave the ice and take refuge in the boat. They got under way early in the morning, but found their craft leaking badly, and loaded too deep to carry them. Meat and clothes were thrown overboard, and nothing was carried but a tent, a few skins for covering, and a little bread and pemmican. About fifteen miles were made in a southerly direction, when a landing was made to lighten the boat. The tent was pitched, and the party remained all night, although the ice was cracking and breaking up all around them. The voyage was resumed again in the morning, but had only proceeded about two hours before they encountered a gale. They had a number of narrow escapes before a piece of ice large enough to land upon could be found; upon landing, the boat was rapidly making water, and when cleared, a great hole was found in her side. Repairs were made as soon as possible, and they took to the water, only to find themselves again surrounded by ice in such a manner that they were compelled to seek refuge on a floe. Gale succeeded gale, and as the ice continued to break they were constantly removing their things to a new center. On the night of the 7th it broke again, carrying with it the boat, the kayak, and Mr. Meyer. For a time it seemed as though all were lost. The ice kept closing in on them and they were without hope of saving the boats or their unfortunate companion. When daylight arrived an attempt was made to rescue them, all the party, except two, venturing away on the ice. All who

ventured reached the boat in safety, and with much difficulty she was taken back, and Meyer was saved. The kayak was then secured in a similar manner. The tent was taken down and erected again on the center of what had then become a small piece of ice, and a snow hut was constructed at its side. Again the wind commenced blowing a gale, and preparations were made to take to the boat. They were literally washed out of the tent and snow hut. The women and children were placed in the boat without a dry spot, and without so much as a piece of fresh water ice to eat. The storm soon abated, however, and the tent was pitched once more. The six months of the voyage on the ice were completed April 16. At that time they were still without any prospect of a rescue, and starvation was staring them in the face. Seals were in sight all around them, but none could be caught. Only a few days' provisions were left, and cannibalism was staring them in the face. On the 18th a small hole was discovered in the ice some distance off, from which a seal large enough for three days' provisions was secured, and divided equally among the party. On the 20th a sea struck the ice, and carried away everything which was loose upon it. This was repeated every fifteen minutes, and it kept all busy looking for a place which would enable them to successfully withstand the next shock.

The agony of suspense continued ten days longer, and in that brief space were crowded many perilous adventures, which were a severe tax on the endurance of the sufferers. An observation showed that they were in latitude $53^{\circ} 57'$, a distance of 1,875 miles in a straight line south from the point where they started. Each day passed, as did its predecessor, the sufferers being all wet and hungry. Sometimes they came within sight of land, but were always driven off again. Meyer seemed to fare worst of all, and his chances for surviving more than a few days longer were considered slender, although all were in a deplorable condition, and had suffered indescribable tortures. Skins that had been tanned and saved for clothing were devoured as a dainty morsel, but even this did not last long, and on April 26 they found themselves without a morsel of food. On that day a bear was discovered on the ice, moving toward them. The

Esquimaux, Joe and Hans, took their guns, and at once went to meet it, the result being that the bear, which came after a meal, was soon the substance of one. That night another gale sprung up, accompanied by heavy rain and snow squalls. By morning the ice upon which they had taken refuge had so wasted away that it became evident it would not outlive the gale, and they were compelled to take the desperate chance of a stormy ocean, in a light boat, insecurely patched, and overloaded. The danger was great, but the boat survived the storm, its occupants being thoroughly drenched, without any chance to dry themselves, having seen neither sun, moon, nor stars, for a week. They soon struck a sealing ground, where they found more seals than they had ever seen before, but for some time were unable to secure any. They were, however, at last successful, and had seal food in abundance. The ice soon became very thick around them. They again started in the boat, but were soon compelled to land on the ice again, where they repaired the boat, and dried their clothing to some extent. On the 28th of April the inevitable gale commenced again, and all night they stood by the boat, launching her in the morning, but were compelled to haul her up on the ice, where icebergs threatened her destruction, but which they fortunately escaped by taking to a floe. The ice became slacker, and during that afternoon they caught sight of a steamer ahead of them and a little to the north. They hoisted their colors, and endeavored to cut her off, but she disappeared without seeing them. Wearied with hardship and disappointment, they landed for the night on a small piece of ice.

For the first time in many nights they beheld the stars, and the new moon also made her appearance. A fire was kept up all night in the hope that they would be seen by the steamer; though in this they were disappointed. In the morning they started early, and at daylight again sighted the steamer about five miles off. The boat was launched, and for an hour they gained on her, but in another hour they became fastened in the ice, and could proceed no further. Landing on a piece of ice they hoisted their colors upon the most elevated point they could find, and then fired three rounds from their rifles and pistols, which were answered

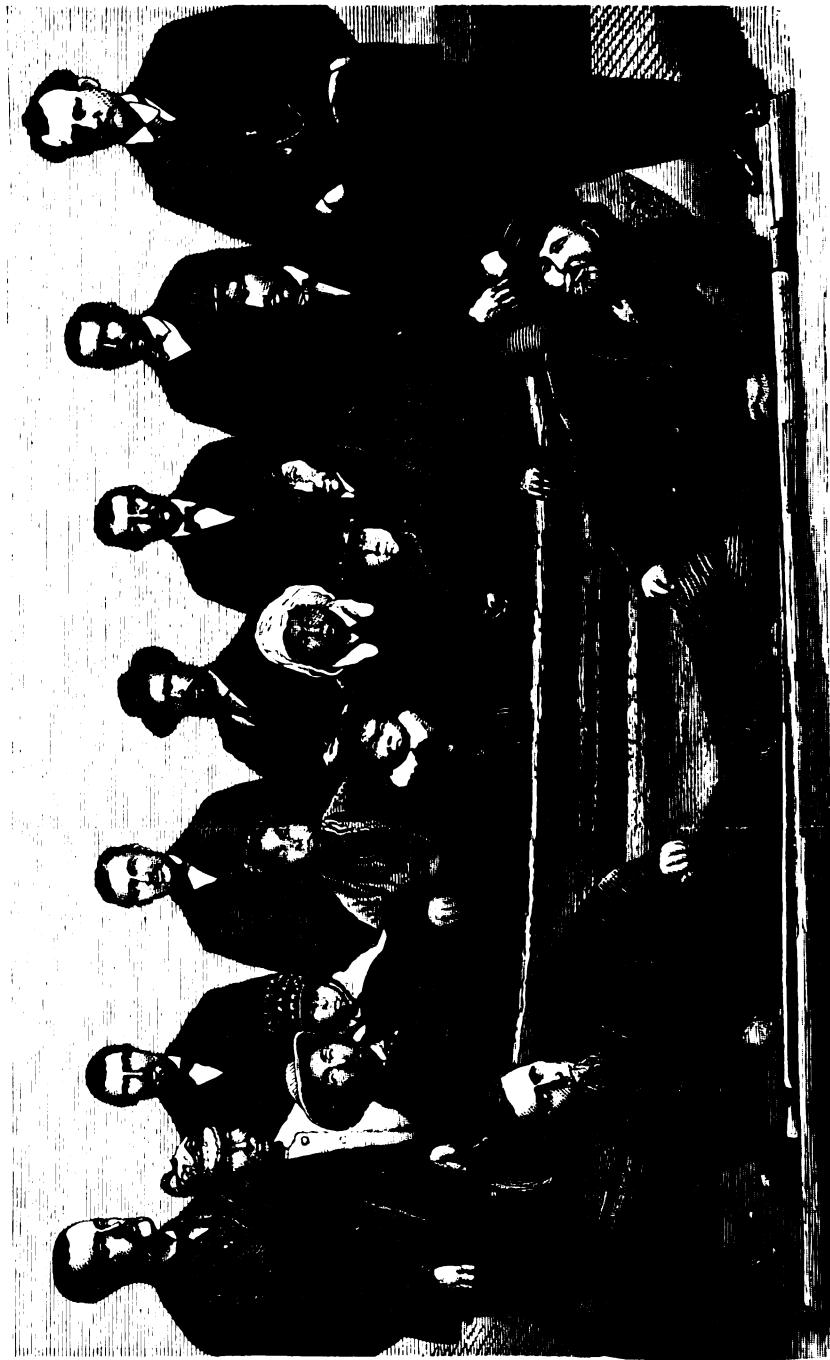
by three shots from the steamer. She was again seen the same evening, and while looking for her, another steamer hove in sight, on the other side.

The morning of Wednesday, April 30, was thick and foggy, but when the fog broke a glorious sight met the eyes of the drifting party. A steamer was seen close to them, and as soon as they were discovered



CAPT. GEO. W. TYSON.

she bore down, and soon all were on board the staunch little craft Tigress, ending their perilous journey in latitude $52^{\circ} 35'$ north. The Tigress was in command of Capt. Bartlett, and was owned in Newfoundland. Some time after, the party was landed in safety at St. John's, Newfoundland, and a few days later the tidings of their rescue reached the United States. A steamer was dispatched by the government from



GROUP OF SURVIVORS FROM TYPHON'S RAFT.

New York to bring the party to Washington, where they arrived early in the month of June.

Thus closes what is probably the most remarkable voyage in the history of navigation. It is marvelous that nineteen persons, two of whom were women, and five children, one of them only two months old, should have drifted almost two thousand miles, for one hundred and ninety-five days through an Arctic winter of extraordinary severity, alive, and in good health. The harmony which existed among the party was striking. No one had a word of blame for any of his fellows, and the men, gathered as they were from nearly all nationalities, always thought first of what could be done for the Esquimaux women and children. In his testimony before the commissioners, one of the men said: "Capt. Tyson had command on the ice; but he never seemed to take much of a lead. Everything seemed to go on very well. There was not a great deal of commanding; it was not wanted. When we did not do as he directed, it turned out wrong."

Let us now return to that portion of the expedition remaining on the Polaris after the sudden separation on the 15th of October, 1872. For a long time she had been leaking so badly that it was evident she could not float many days, and it was resolved to abandon her. Everything which could possibly be of use in a sojourn in that wilderness of ice and snow, was taken out. The hawsers which held the steamer to the ice-floe parted, and she drifted away in a helpless manner. The lives of those on board were in great danger. It was clear she was in no condition to reach port, so it was determined to keep her afloat and beach her at some point where the stores could be saved. Her engines were useless, having evidently frozen up. Fortunately the ice cracked, and an opening was made through which a favorable wind blew her to the shore, distant about twelve miles. The beaching was successfully accomplished, and the work of providing shelter for the winter was immediately commenced. The ship was stripped of all her material as rapidly as possible, and soon became a mere hulk. The timbers between deck were taken out, and all the planking and boarding removed. From this material a hut was built and roofed over with sails. A party of

Esquimaux made their appearance, and for some strips of iron helped to carry the provisions, coal and stores from the dismantled Polaris to the hut. Having been extremely successful in their hunting expeditions they had a large surplus of skins which they disposed of to the party, and from which was manufactured warm, though odorous, clothing. During the long winter they suffered little. The snow which fell banked up the hut and protected its inmates from the cold, while the Polaris formed a convenient wood pile, where they obtained all the fuel they needed. Their provisions were ample for a time, but they knew they would soon



PERILOUS SITUATION OF THE POLARIS.

be exhausted, and became fearful of their fate. They knew that for at least a year no news of the probable loss of the Polaris would reach the United States. "How should they escape," was the great question propounded by each. There is always a man for every emergency, and in the present instance Chester, the mate, proved the hero. Assisted by the carpenter, Coffin, he set about building some boats, or scows, from the boards which had been used as a lining for the cabin. The work was patiently persevered in, and as summer drew near, the boats were finished.

Scurvy, that dreaded disease of the Arctic regions, made its appearance, but following the teachings of the dead Hall, the men abandoned the use of salt food, lived on raw walrus liver, and soon the malady was eradicated.

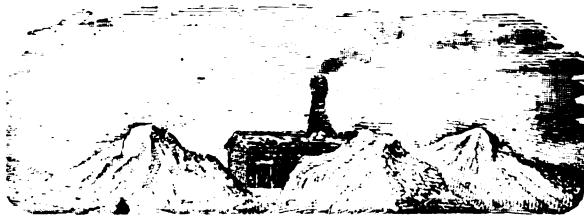
A fortunate thing for the party was the unusually early appearance of good weather. By the middle of June the ice commenced giving way, and at the earliest possible moment thereafter they took to the boats, and commenced their voyage in search of transportation home, with the odds fearfully against their success. While they were on their way the Tigress and Juniata were being fitted out to go in search of them.

The frailty of their boats compelled them to proceed slowly and cautiously. During the day they rowed along, and each night the boats were hauled up on the ice, where the only warm meal for the day was enjoyed. Their stove was a slight improvement on the Esquimaux lamp, and their fuel was oil, while their wicks were strips of rope, and the fire-place a remnant of an iron kettle. A snowstorm delayed them several days at Hakluyt Island, a breeding place for the auks, which were at that time hatching their young, and which supplied them an abundance of food limited only by their powers of consumption and the means of carrying it away.

After leaving the island their progress through the slush was very slow and laborious. They skirted the solid ice-floes until July 20, and just two days before the Tigress left New York in search of them, they sighted a vessel, which soon discovered them, and took them on board. She proved to be a Scottish whaler, the Ravenscraig. Not having secured a full cargo, and wishing to do so before he returned home, the captain of the Ravenscraig transferred the party to another steam whaler, the Arctic, homeward bound, and on the afternoon of Sept. 17 they landed at Dundee, Scotland. Their arrival was at once telegraphed to London, and the safety of the crew of the Polaris was announced the following morning in the American papers.

Thus ended one of the most wonderful voyages on record. Out of the forty men, women and children comprising the expedition, only one

death, that of Capt. Hall, occurred, a most marvelous preservation of life amid the greatest danger to which mariners were ever subjected. The unfortunate decease of Hall in the infancy of the enterprise prevented the accomplishment of such results as were desired and expected. With the commander died the hope and heart of the expedition, and no further attempt at discovery or original exploration was made. The loss of so brave and skillful a navigator may well be an occasion for the deepest sorrow and regret amongst all who reverence and admire American prowess and heroism.



CHAPTER LXXII.

AUSTRO-HUNGARIAN EXPEDITION — A PIONEER EXPEDITION — THE
ISBJÖRN — INFERENCES — THE TEGETTHOFF — ARCTIC SCENES —
BESET — THE FLOE CRACKS—A TERRIBLE WATCH—A HOUSE ON
THE ICE — GREAT DISCOVERIES — FALL OF A SLEDGE — FRANZ
JOSEF'S LAND—A NECESSARY CONCLUSION—MARCH TO THE SEA
—SAVED BY A RUSSIAN WHALER.

The failure of the second German Expedition of Koldewey directed the attention of after navigators away from the ice-packs of Greenland to the more open seas of Nova Zembla. Although for many reasons, among them her comparatively inland position and political relations, the government of Austria had been prevented from taking any active part in the great geographical problems of the times, an interest in polar researches gradually developed into a determination to send her flag upon the peaceful quest of new discoveries in the frozen north. A large-hearted nobleman contributed 40,000 florins to such an enterprise, thus not only confirming but endowing the resolution. In order, however, not to waste a large amount of money and labor upon an impracticable scheme, it was determined to send out a so-called pioneer expedition under the joint command of Lieuts. Payer and Weyprecht. The knowledge and experience thus gained induced the government, as we shall see, to send out another vessel with a more extensive outfit to spend, as the need might be, two or more winters in the Arctic seas.

Both of the officers in whose charge the enterprise was given were men of sterling qualities and undoubted ability. Weyprecht had been given the command of one of the German expeditions, but a fit of sickness had prevented his carrying out the plan which made him the commander of the party. Lieut. Payer has already been mentioned as a participator in the German expedition which returned in 1870. Having

also been previously employed in the survey of the peaks and glaciers of the Alps, he was the better prepared to enter upon a life of active service in the snows and hummocks of Nova Zembla. He shines as the historian of the expedition, his descriptions of Arctic scenes and experiences being excelled only by those of Kane in vivid and graphic character.

The pioneer expedition was to sail in June, 1871, and return in September of the same year. It did not aim to reach high latitudes, nor to make great discoveries. The attention of the commanders was directed to the temperature of the air and water, to the position and condition of the ice, and to all observable phenomena, as connected with the probable success of the expedition proposed for the next year. In order to reduce expenses, so far as possible, a light sailing vessel, the *Isbjörn*, was chartered and manned at a trifling cost. This vessel was fifty-five feet long, seventeen feet broad, and had a draught of six feet, with a capacity of fifty tons. She was owned and commanded by the skipper, Kjelsen, and had as a crew a harpooner, four sailors, a carpenter, and a cook—all of whom were Norwegians.

The voyage of the *Isbjörn*, though without thrilling incident, or independent geographical results of importance, formed the foundation of several important inferences bearing upon the propriety of another and more pretentious voyage. The following are the most important of the conclusions reached:

1. The Nova Zembla sea was not filled with impenetrable ice, like that part of the ocean contiguous to Greenland; on the contrary, observation and report showed it to be open every year, probably up to 78° north latitude, and connected with the Sea of Kara, which was also thought to be unusually free from ice.

2. The time most favorable for navigation in this sea falls at the end of August, and lasts during the month of September—this period being considered as embracing the minimum of ice.

3. The Nova Zembla sea was found to be shallow—geologically, a connection with, and a continuation of, the great plains of Siberia. In its extreme north its depth was only 100 fathoms.

4. The expeditions of the past and present centuries, which at-

tempted to penetrate by the northwest coast of Nova Zembla, failed because they were upon the place of observation before the time, and also, because they lacked steam.

5. How far the Gulf Stream had any share or influence in the favorable condition for the navigation of the Eastern Polar Sea, could not yet be positively determined, but the state of the ice, the observations upon its temperature and color, and the character of the observed animal life, seemed to testify in favor of the action of this current in those regions.

These conclusions seemed to justify the determination to push the proposed project of a prolonged voyage of discovery, and it was thus that the Austro-Hungarian expedition originated.

It was the plan of those who had the expedition in hand to penetrate east and north during the latter half of August, when the north coast of the great island of Nova Zembla is free from ice. The places for wintering were left undetermined; they were to be chosen according to circumstances of need or progress. In case of the loss of the ship, the expedition was to endeavor to reach the coast of Siberia by means of boats, and then to gain the interior by one of the gigantic water courses of Northern Asia. No connection with Europe was to be depended on. Payer well says: "The motives of an undertaking so long and laborious cannot be found in the mere love of distinction or adventure. The object must not be the admiration of men, but the extension of the domain of knowledge. · The grandeur of one's purpose alone can support him, for otherwise the dreary void of things without can only be an image of the void within."

The ship chosen for this principal voyage was the Tegetthoff—a steamship of 220 tons burden, carrying an engine of 100-horse power. It was fitted with provisions and fuel for two years and a half, but was overloaded by about thirty tons, so that the available space was much taken up. It was, however, as Payer says, "Far more commodious than the miserable hole in which eight of us had been crowded together on our Greenland tour." On the 13th of June, 1872, the expedition set out to cross the North Sea, and reach the coast of Norway, where the

last repairs were to be made, and the last adieu exchanged with European brethren. The crew numbered twenty-four, and embraced Germans, Italians and Hungarians, though Italian was the language in which the orders were given.

After a stop of some days on the Norway coast and the Lofsdalen Islands, the Tegetthoff was at last fairly on her way to her long abode among the icebergs of Nova Zembla. The vessel soon came upon scenes strange and unfamiliar to most of the crew on board the Tegetthoff. As they came into the region of ice the temperature rapidly lowered. Fogs arose in the distance from the leads in the ice-field, and snowstorms alternated with cloudless skies and genial sun. Far to the north was observed the "ice-blink,"—a shining band of light in the horizon,—always a faithful monitor of solid ice, of whose radiating power it is a portrayal. There is said to be no more solemn sound than that made by the action upon the ice of the elements of thaw and frost, and no pictures more sad and ghostly than the procession of icebergs floating "like huge white biers toward the south." Great falls of thaw-water flowed down the sides of the icebergs, sometimes rending them with a noise as of thunder by their constant wearing.

But when the sun came out, the fogs disappeared toward the horizon, and the whole scene was bathed in rosy and golden splendor, the ice-crystals flashing like diamonds in the flood of light. Occasionally a whale would rise out of the water, like a great black mountain, and then diving deep beneath the surface, make the ocean tumultuous with his awkward gambols. The icebergs presented some curious shapes. Some were chiseled as if by a trained sculptor into fantastic forms of Gothic architecture, with quaint little peaks and towers, and grotesque gables. Others represented mammoth structures supported by regular columns, apparently of solid glass. Rarely were the regular prisms, so common in the North Atlantic, observed in these Arctic Seas. Such were some of the sights which greeted our voyagers as they entered the Polar Ocean.

They had sailed over one ice-hole, and now again a broad and lofty barrier loomed up before them. They succeeded in forcing their way

into it, but after using all steam of which their vessel was capable, thus found the Tegetthoff actually beset, and the floes crowding together, gave an unbroken field for miles around. On Aug. 1 the vessel was still beset, and there being a complete calm, no efforts to release her were availing. They were now in latitude $74^{\circ} 39'$, longitude 53° . At length, on the 2d, they broke through the ice which separated them from the open water around Nova Zembla, and penetrated about 20 miles toward the coast. A belt of ice 105 miles broad lay behind them, while before them rose the mountainous coast of Nova Zembla. Sailing and steaming on along the coast of Nova Zembla toward the north, they came on the 9th of August to another ice-barrier in latitude about $75^{\circ} 30'$ north. In the neighborhood of the Pankratjew Islands, the crew of the Tegetthoff were surprised to descry a ship on the horizon, which they soon recognized as their old friend, the Isbjörn. It was a matter of the greater astonishment that a sailing vessel should have followed a ship which, only with the aid of steam, and even thus with great difficulty, had been able to penetrate so far in the icy seas of the frigid zone. The object of their friends of the Isbjörn was to establish a depot of provisions at Cape Nassau, at whatever risk to themselves. The two ships remained together until the 20th of August, the 18th being celebrated as the birthday of the King and Emperor of Austria, Francis Joseph I. On the 20th the two ships parted company, the Tegetthoff steaming away to the north, and the Isbjörn soon disappearing in the mist that arose from the more southern water.

The Tegetthoff was now well toward the north of Nova Zembla, the navigable water was becoming narrower every day, and the ice seemed to increase in solidity, especially in the neighborhood of the coast. On the evening of this day, the 20th, a barrier of ice stopped all further progress. As usual, the ship was anchored to a floe, and awaited the parting of the ice. "Ominous," says Payer, "were the events of that day, for immediately after we had made the Tegetthoff fast to that floe, the ice closed in upon us from all sides, and we became prisoners in its grasp. No water was to be seen around us, and *never again were we destined to see our vessel in water.* From day to day we hoped for the

hour of our deliverance. At first we expected it hourly, then daily, then from week to week; then at the seasons of the year and change of the weather, then in the changes of new years! But that hour never came, yet the light of hope which supports man in all his sufferings, and raises him above them all, never forsook us, amid all the depressing influences of expectations cherished only to be disappointed."

September came on with its increasing cold; October opened with its really wintry weather, and yet no signs of release. The ship, as firmly fastened as with iron bands, drifted northward with the floe which formed its prison. Many signs indicated the insecurity of their position.

A little way off fields of ice cracked and split asunder, and huge masses moved about them, speaking warning volumes of the terrible possibilities of ice-pressure. Thus far no harm had immediately threatened the Tegetthoff and her crew, but the 13th of October was destined to bring new and exciting experiences. To those among the crew at all inclined to be superstitious, the number "13" had a profound significance. The committee of the expedition had been chosen on Feb. 13; on the 13th of January the keel of the Tegetthoff had been laid; she was launched on the 13th of April; on the 13th of June the expedition embarked from Bremerhaven; on the 13th of July from Tromsøe. After a voyage of thirteen days they had arrived in the ice; and now on the 13th of October the temperature marked 16° below zero (Centigrade), and the ship and crew were threatened with most terrible danger. In the morning of that day as the men sat at breakfast, the floe to which the vessel was attached burst asunder directly below them.

"Rushing on deck," says Payer, "we discovered that we were surrounded and squeezed by the ice; the after part of the ship was already nipped and pressed, and the rudder which was the first to encounter its assault, shook and groaned; but as its great weight did not admit of its being shipped, we were content to lash it firmly. Noise and confusion reigned supreme, and step by step destruction drew nigh in the crushing together of the fields of ice. * * * * * About 11:30 in the forenoon, according to our usual custom, a portion of the Bible was read on deck, and this day quite accidentally, the portion read was the history of



START OF A SLEDGE EXPEDITION.

Joshua; but if in his day the sun showed any inclination to stand still it was more than could be said of the ice at this time."

The long night and its fearful cold was before them, and they were drifting, they knew not whither. Daily—with slight abatements, it is true—but *daily*, for one hundred and thirty days they were destined to experience those terrible oncomings of the ice. They kept everything in readiness for retreat from the ship in case the worst came to the worst. Their sledges were loaded, their boats were manned, and their clothing and provisions were distributed. They slept in their wet, frozen garments expecting to be called up at any time and driven forth on the ice. But whither should they go? The sea about them was lifting and grinding far beyond the view. Great hummocks danced and whirled, overturning at times with tremendous force, while chasms opened on every hand, threatening to swallow up any sledge, or boat, or person, venturing on the uncertain surface. It was fortunate that these first encounters with the ice occurred while it was yet light. Had these assaults surprised them amid the polar darkness, confusion and disorder would have taken the place of the calm preparations they were now able to make.

The pressure meanwhile continuing, it was thought best to make some kind of a habitation upon a firmer floe to which they might betake themselves in an emergency. Armed and provided with lanterns they removed two boats, one hundred and fifty logs of wood, fifty planks, and a supply of coal, to the port side of the vessel, and there built their house of refuge. But even this hope might fail them. A storm might carry away the planks which formed its roof, fire might consume the combustible substance of its walls; and at any time a fissure might open from beneath, and swallow up the whole community. So days, weeks, and months passed by, and the first day of 1873 dawned upon the benighted party, if a day without sun, or light, or warmth, may be said to dawn. Every effort was made to keep up the usual festivities on Christmas and New Year. Wine and grog were distributed, games were played, and a box of gifts was apportioned by lot. On the 1st of January, too, they allowed the dogs the long wished-for privilege of the cabin. "The poor animals," says Payer, "were so dazzled by looking at

our lamps, that they almost took it for the sun itself; but by and by their attention was directed exclusively to the rich remains of our dinner, the sight of which appeared completely to satisfy their notions of the wonders of the cabin. After behaving themselves with great propriety, they again quietly withdrew, all except 'Jubinal,' who appeared to be indignant at the deceitfulness of our conduct, inasmuch as we had allowed him to starve so long on dried horseflesh and on crushed bear's head,



TRANSPORTING WOOD FOR THE HOUSE.

while we reveled in luxury. He accordingly made his way into Lieut. Brosch's cabin, where, discovering a mountain of macaroni, he immediately attacked it, and warned us off from every attempt to rescue it, by growling fiercely till he had finished it. 'Sumbu,' however, with much levity, suffered himself to be made drunk by the sailors with rum, and everything which he had scraped together for weeks and buried in the

snow and so carefully watched, was stolen from him by other dogs in one night."

The winter of 1872-3 slowly crept away, and the sun, by his reappearance, gave promise of summer. Summer came, but the months of May and June, in temperate climates the glad harbingers of growth and life, brought no relief to the waiting travelers. "Nichts als Eis" (nothing but ice), was the oft-repeated answer of those who eagerly scanned the horizon in every direction. The second summer of the voyage had now come and nearly gone. It had begun with promise of liberation, but the time of greatest heat had gone by, and no sign of the predicted release had come. The idea of discoveries had utterly passed out of the minds of the explorers, and yet discoveries beyond their utmost expectations were awaiting them.

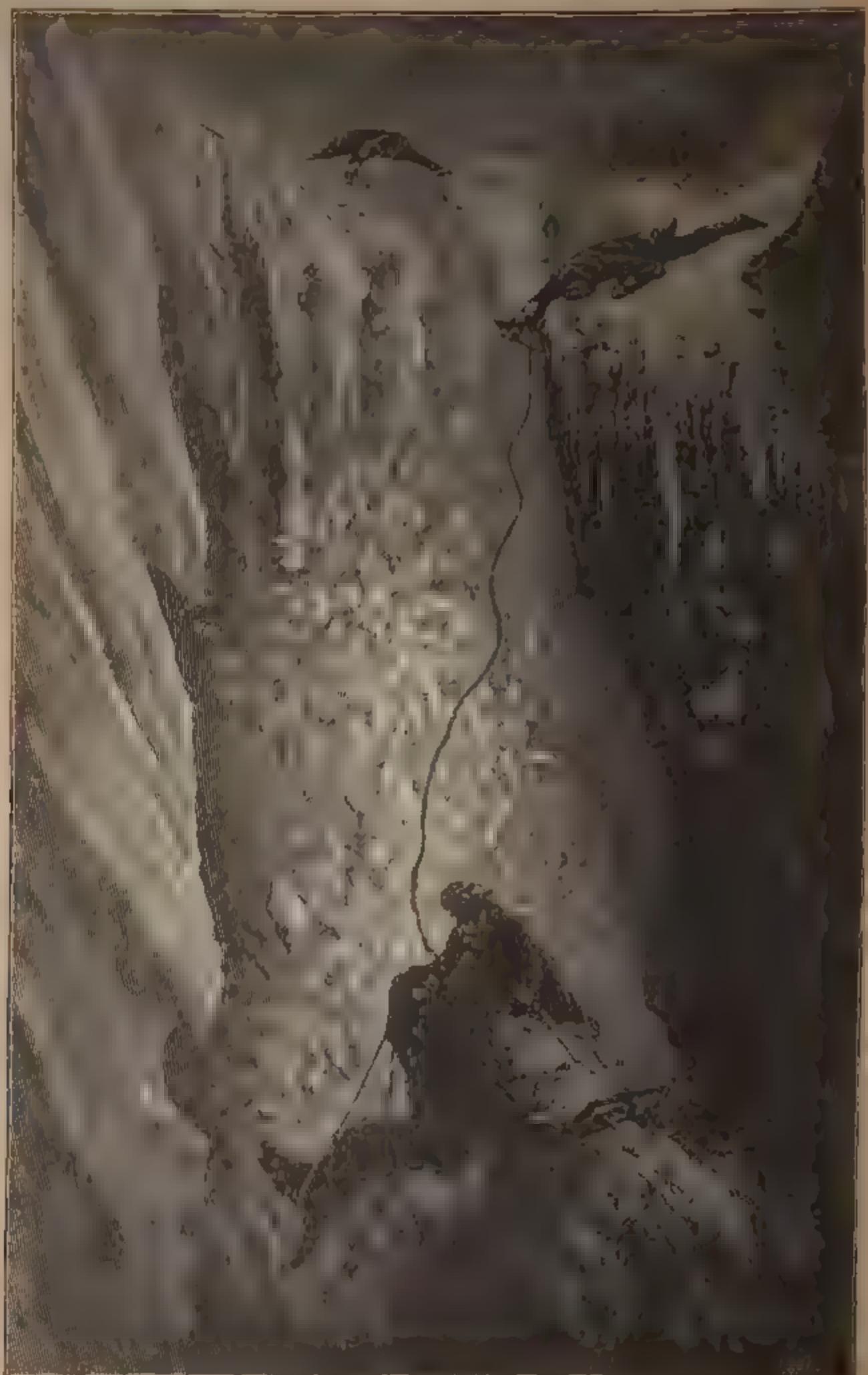
Aug. 30 brought them in latitude nearly 80° , a joyful surprise. "At midday," says Payer, "as we were leaning on the bulwarks of the ship and scanning the gliding mists, through which the rays of the sun broke ever and anon, a wall of mist, lifting itself up suddenly, revealed to us afar off in the northwest the outlines of bold rocks, which in a few minutes seemed to grow into a radiant Alpine land. At first we all stood transfixed, and hardly believing what we saw. Then, carried away by the reality of our good fortune, we burst forth into shouts of joy—'Land, land, land at last!' * * * For thousands of years this land had lain buried from the knowledge of men, and now its discovery had fallen into the lap of a small band, themselves almost lost to the world, who, far from their home, remembered the homage due to their sovereign, and gave to the newly-discovered territory the name, Kaiser Franz-Josef's land."

The fall and winter of the present year were occupied in determining more fully the extent and configuration of the island or Arctic continent just found. This work was conducted chiefly by means of sledge-journeys to and over the rough surface of the country which they had dignified with the name of their Emperor. Space forbids to give more than a brief account of this exploration, though the dangers and adventures with which it was attended are equaled by those of few Arctic explorers.

One experience in the fissures of what was named Middendorf Glacier is especially worthy of note.

The party after a brief halt were just setting out again, when the snow gave way beneath the sledge-runners, and driver, dogs, and vehicle, were precipitated into some unknown depth below. Payer first heard the confused shouting of the man, mingled with the barking and howling of the dogs from the bottom of the crevasse, many feet below. "All this," says he, "was the impression of a moment, while I felt myself dragged backward by the rope. Staggering back, and seeing the dark abyss beneath me, I could not doubt that I should be precipitated into it the next instant. A wonderful providence arrested the fall of the sledge; at a depth of about thirty feet it struck just between the sides of the crevasse, just as I was being dragged to the abyss by its weight. The sledge having jammed itself in, I lay on my stomach close to the awful brink, the rope which attached me to the sledge tightly strained, and cutting deeply into the snow."

By incredible tact and perseverance Payer at last freed himself from the sledge, and set about recovering the store of lost provisions, the manuscripts, which could never be replaced, and above all, about the rescue of the fallen comrade who was the "pride and gem of the party." Being the only one of the party accustomed to glaciers, Payer was of necessity almost alone in his exertions. Rushing back to the tent where most of the men had remained, he hurriedly explained what had happened, and all hastened to the spot of the disaster, leaving the tent and stores unwatched. They found their poor comrade nearly dead from the cold, but sufficiently conscious to be pulled to the top of the ice-cliff over which he had fallen. The dogs were found uninjured and quietly sleeping near him, but celebrated their release by joyful demonstrations. "It was a noble proof," continues Payer, "how duty and discipline assert themselves even in such situations, that the first word of the sailor saved from being frozen to death, was not a complaint, but thanks, accompanied with a request that I would pardon him if he, in order to save himself from being frozen, had ventured to drink a portion of the rum which had fallen down in its case with the sledge to his ledge of snow."



FALL OF A SLUDGE.

Franz Josef's Land was found to be almost as large as Spitzbergen, and to consist of two main masses—Wilczek Land on the east, and Zichy Land on the west—between which runs a broad stretch of sea, of ice, called Austria Sound. At the time of this exploration the sound was covered with ice for the most part not more than a year in growth, crossed in many places by fissures, and piled up with huge hummocks. The fact that here many icebergs were seen, which had not been the case in the Nova Zembla seas, warranted the supposition that they floated away from the ice-packs in a northerly direction. The map made by the present expedition was designed and constructed from fifteen observations of latitude, from drawings made on the spot, and from a system of triangulation planned and perfected by Weyprecht, the commander-in-chief of the expedition. In the northernmost regions surveyed, the results made no pretensions to complete exactness. Though the discoveries made were likely never to become important to the material interests of mankind, the land and its parts were named after the chief patrons of the expedition as the most fitting way in which the gratitude of the party could be shown.

The experience of two winters in the ice had forced the party to the conclusion that the liberation of the Tegetthoff was too remote for them to hope to save themselves by navigating the path over which they had come by its aid. Her abandonment therefore was universally agreed on, and the 20th of May, the very day on which, in 1854, Kane had left the Advance on the coast of Greenland, was chosen for the first steps of their present enterprise. The day was hailed with joy by all, for while the coming days were to be darkened with much danger and many hardships, even these were preferable to the life of monotony and inaction to which they had been reduced on board the Tegetthoff. It was, however, only with the deepest emotion that they could part with the spot which had been their home so long. Their stock of instruments, which had done them such good service, together with the little museum, which all had taken so much pride in enlarging, had to be abandoned, as the journey southward to the open sea could only be made by relieving the men and dogs of everything except absolute essentials. The pictures of

friends and acquaintances were hung up on the frozen walls of the land for the thought of their perishing with the inevitable destruction of the ship, was unbearable.

Boats, sledges, everything that could be taken, were at last removed, and the march begun. For the first few days the burdens had to be dragged over hummocks and through fissures, without even the variety of water upon which to launch the boats. In a short time, however, narrow leads appeared, produced by the advancing summer and a fortunate combination of other circumstances, into which the boats were placed, and a sort of doubtful navigation was begun. But these leads were limited, and great masses of ice must be continually thrust out of the way. Moreover, a south wind arose which tended to destroy what progress they had been able to make, so that after a lapse of nearly two months of indescribable efforts, *the distance between them and the ship was not more than nine English miles.* Another month, however, gave promise of better things. The leads became of greater length; the swell of the ocean became perceptibly greater; and the thickness and extent of the ice was evidently rapidly diminishing. It was a joyful day for our brave explorers when, on the 15th of August, in latitude $77^{\circ} 49'$, they bade farewell to the frozen ocean, and launched their barks on the more genial waters of the Nova Zembla Sea. There being no room for the dogs in the boats, nor other possible means of conveying them, it was thought humane to kill them, which was done to the infinite sorrow of the entire party.

The problem of their rescue was now simple compared with the difficulties which they had just successfully combated. They shaped their course by Barentz Islands, Cape Nassau, where the store of provisions had been deposited, and the Admiralty Peninsula, hoping that they might in this latitude look for whalers or other fishermen. It was not, however, until they had reached and passed the Admiralty Peninsula, on the west coast of Nova Zembla, and were nearing Ganse Land toward its southern border, that the welcome sight of a ship greeted their longing eyes. Here they met on the 24th of August two Russian vessels cruising for fish and reindeer on the shores of Nova Zembla. The ser-

vices of one of these vessels were readily engaged, and the long-suffering crew were soon on their way to Norway, after a ninety-six days' experience in the open air. On the 3d of September they landed at Vardö, on the Norwegian coast, and on the 5th embarked for Hamburg, where they arrived amid the congratulations and applause of thousands of friends and countrymen.



CHAPTER LXXIII.

ENGLISH EXPEDITION UNDER NARES—THE ALERT AND DISCOVERY
—BORING THROUGH THE PACK — THE ELYSIUM OF THE ARCTIC
REGIONS — MAXIM OF ROSS — THE DISCOVERY FINDS WINTER
QUARTERS — THE SEA OF ANCIENT ICE — WINTER AMUSEMENTS
—DEATH FROM EXPOSURE—EXEMPTION OF OFFICERS FROM DIS-
EASE — MARKHAM'S SLEDGE-JOURNEY — REACHES THE HIGHEST
POINT EVER ATTAINED—PALÆOCRYSTIC ICE—NARES CONCLUDES
TO RETURN TO ENGLAND — EPITAPH ON THE GRAVE OF HALL.

One of the recurring intervals of indifference or hopelessness in relation to Arctic exploration had succeeded the great activity of the Franklin search voyages in England. The field was left to German, Austrian, Swedish and American navigators, until England was in danger of losing the prestige acquired in that line by many generations of brave mariners, and at great expense of life, energy, and money. Other nations, stepping in at the eleventh hour, had actually won the laurels of more northern land discovery, than had been made by the representatives of the nation whose previous efforts had largely contributed to make such success practicable. A generous and worthy rivalry now seized the Royal Geographical Society, under the inspiration of Admiral Sherard Osborn, himself an Arctic navigator, as will be remembered; Sir Rod-erick I. Murchison, the eminent geologist and geographer, and president of the society, who, however, died in 1871, before definite action had been taken; Lady Franklin, whose interest in Arctic exploration never flagged up to her last illness and death in 1875, and other influential persons.

The government gave its sanction to the movement, and an expedition was duly organized and commissioned. It consisted of two vessels, the Alert and Discovery. The former was a steam sloop of the royal

navy, of 751 tons burden, and 100 horse power; and was now specially strengthened for her new destiny. The Discovery had been a steam whaler, and was purchased by the government of her Dundee owners, and fitted out for this voyage. The commander of the expedition and of the Alert was Captain, afterward Sir George Nares, a man of considerable experience, and who had been in the Arctic service. As chief assistant he had Commander A. H. Markham, who also had seen Arctic life, and Capt. H. F. Stephenson, as immediate commander of the Discovery. The officers and men of both vessels numbered 120, many of whom had seen Arctic service as whalers or explorers. The Valorous accompanied them to Disco Island as store-ship, and having there transferred her surplus stores to the other two, she left for home July 16, 1875. On the voyage to Disco they had encountered much loose ice off Cape Farewell, and many heavy gales, in which they lost two of their whale boats.

Leaving Disco on the 22d, the Alert and Discovery steamed across Baffin's Bay to the northwest, instead of hugging the Greenland shore through Melville Bay, and struck the great central ice-pack July 24. In thirty-four hours they had succeeded in boring through the pack into open water—a feat never before performed, and which the Greenland-masters declared “would ne'er be credited at Peterhead.” It helped to prove the superiority of steam-power for Arctic navigation. Reaching the vicinity of Cape York many icebergs were seen aground and closely crowded, indicating that they would perhaps not have fared so well had they taken the old route through Melville Bay, and around that cape. Pushing north they soon arrived at Carey Islands, where they landed, and established a depot of supplies, depositing the usual record under a cairn. Passing Littleton Island, where they left a record, and Port Foulke, which Nares styles “The Elysium of the Arctic regions,” they made for Cape Sabine, the easternmost promontory of the Ellesmere Land of Inglefield, in $78^{\circ} 45'$. Off that point, July 30, they saw the ice in great quantities, but in the middle of Smith's Sound it consisted of detached floes, five or six feet thick, with occasionally an old floe of twice that thickness, but much decayed, and presenting no serious

obstacle to their onward progress. At length, however, their way was blocked by impenetrable ice, and they were detained three days in Payer Harbor, awaiting a practicable opening. Several fruitless attempts were made to bore through, but at last success crowned their efforts, and on the 4th of August they forced their way through twenty miles of Hayes Sound. Soon, however, they got entangled in the pack, making but little headway, and finally were completely beset, barely escaping collision with a huge iceberg, and finding it necessary to unship their rudders. With great labor, and amid many dangers for three weeks longer in Kennedy Channel, having constant occasion to apply the advice of Sir John Ross—"Never to lose sight of the two words caution and patience"—they reached Cape Lieber, Hayes' limit of 1860, on the 24th of August, and entered Lady Franklin Sound.

Here in the shelter of an island was found a good harbor, perfectly suitable for winter quarters; and to enhance their good fortune, they saw on the next morning a herd of nine musk-oxen peacefully cropping the fresh and short-lived Arctic vegetation, all of which were killed, forming a very seasonable addition to their stores, notwithstanding the flavor "was so very musk." Before the 10th of October they had shot thirty-two of them, and had at one time over 3,000 pounds of their frozen flesh hanging up. The Discovery was left here, remaining frozen in for 10½ months. Their first care was to take ashore and deposit provisions for six months to guard against the contingency of disaster to the ship by fire or otherwise during her detention. Snow-walls were then constructed around her, after the now well-known type, but heavier than usual, being made fifteen to twenty feet thick. These precautions, with the ordinary provisions for heat, kept the temperature of the lower deck at 48° to 56°, throughout the winter. The period of darkness, that is, absence of sunlight, set in on the 10th of October, and lasted 135 days.

Leaving Stephenson and his men busy with their preparations for winter, Nares pushed on in the Alert, and on the 31st of August reached latitude 82° 24', in Robeson Channel—the highest point ever attained by ship, and only 21' short of Parry's sledge limit, 82° 45' north of Spitzbergen. In this channel the sea ice approached the land ice so close

as to leave but a narrow water way, and off Cape Sheridan they closed together, completely locking the northern entrance, or exit into the Polar Sea. Along the coast a jagged parapet of ice fringed the shelving ledges, rising to an average height of about twenty feet, interrupted at intervals by ravines. Having rounded the northeast point of Grant Land, he found himself where Hayes had been so anxious to reach, but instead of the Open Polar Sea of that navigator he found the "Sea of Ancient Ice," impenetrable and forbidding. The ice was of unusual age and thickness; for instead of the five or six feet of the common floe, and the ten or twelve of the old floes hitherto encountered, it presented a front of fifteen or more feet above water, and a total of eighty to one hundred and twenty feet—resembling a connected chain of low icebergs rather than the floes or packs of more southern latitudes. In the shelter of such ice, where the submerged portion, extending to the land, left a sufficient water way for the ship, Nares found safe though not inviting winter quarters; and here they were soon frozen in by the newly formed shore ice.

While most of the ship's company were briefly engaged in the usual labors for securing the safety of the ship and stores, Lieut. P. Aldrich, accompanied by Adam Ayles, set out Sept. 21, with two dog-sledges—dogs and sledges for the expedition had been secured at Disco—under orders to pioneer a route round Cape Joseph Henry, on the north side of Grant Land, for a larger party which was to follow. Four days later, Commander Markham, with Lieuts. A. A. C. Parr and W. H. May, started with three sledges to establish a depot of provisions as far to the northwestward as would be found practicable. On the 27th Aldrich and Ayles, from a mountain top 2000 feet high, in latitude $82^{\circ} 48'$, descried the wide-extending land to the northwestward as far as $83^{\circ} 7'$, with lofty mountains to the south. They returned to the Alert on the 5th of October, after an absence of fourteen days. A week later they entered on the Arctic night, the sun having disappeared below the horizon; and on the 14th Markham returned after a trip of nineteen days, having established the depot at $82^{\circ} 44'$, and tracing the coast two miles farther to what might be regarded as the exact latitude reached by Parry, else-

where, nearly half a century before. Markham's party comprised twenty-one men and three officers, of whom seven men and one officer returned badly frost-bitten, three so severely as to require amputation, the thermometer ranging through the trip from 15° to 22° below zero. Meanwhile, from the 2d to the 12th, Lieut. Rawson had made an unsuccessful attempt to open communication with Capt. Stephenson in Lady Franklin Sound. The ice was found impassable within nine miles of the ship, being rotten and unsafe in the channel, and piled up thirty feet high on the shore, while the deep snowdrifts in the ravines made the overland route equally impracticable.

The usual efforts to amuse and instruct the ship's company were inaugurated under the auspices of the commander, who says that of fifty-five men who composed the crew of the Alert, only two were found who could not read. Besides the school for instruction there were lectures, readings, concerts, and theatrical representations, Thursday of each week being devoted to these entertainments. The first theatrical performance was given on the 18th of November, and was thus formally announced: "The Royal Arctic Theatre will be opened on Thursday next, the 18th inst., by the powerful Dramatic Company of the Hyperboreans, under the distinguished patronage of Capt. Nares, the members of the Arctic Exploring Expedition, and all the nobility and gentry of the neighborhood." On the Discovery similar entertainments were given, its theater being opened Dec. 1, and the plays being rendered alternately by officers and men. Each vessel had a small printing press which was used for issuing programmes and bills of fare on occasions of great dinners. On the anniversary of the Gunpowder Plot, Nov. 5, they had a bonfire on the ice, and burnt Guy Fawkes in the approved style. Christmas was thus observed: "First of all, in the morning we have Christmas waits in the usual manner. A sergeant of marines, the chief boatswain's mate, and three others, went around the ship singing Christmas carols suited to the occasion, and made a special stay outside the captain's cabin. On the lower deck in the forenoon there were prayers, and after that captain and officers visited the mess in the lower deck, tasted the pudding, inspected the decorations which had been made, and so on.

Then the boxes of presents by friends in England were brought out, the name of him for whom it was intended having been already fixed to each box, and the presents were then distributed by the captain. Ringing cheers, which sounded strange enough in that lone place, were given for the donors, some of them very dear indeed to the men who were so far away from their homes. Cheers were also given for the captain, and for absent comrades on the Alert. A choir was then formed, and "The Roast Beef of Old England" had its virtues praised again. The men had their dinner at 12 o'clock, and the officers dined together at 5.

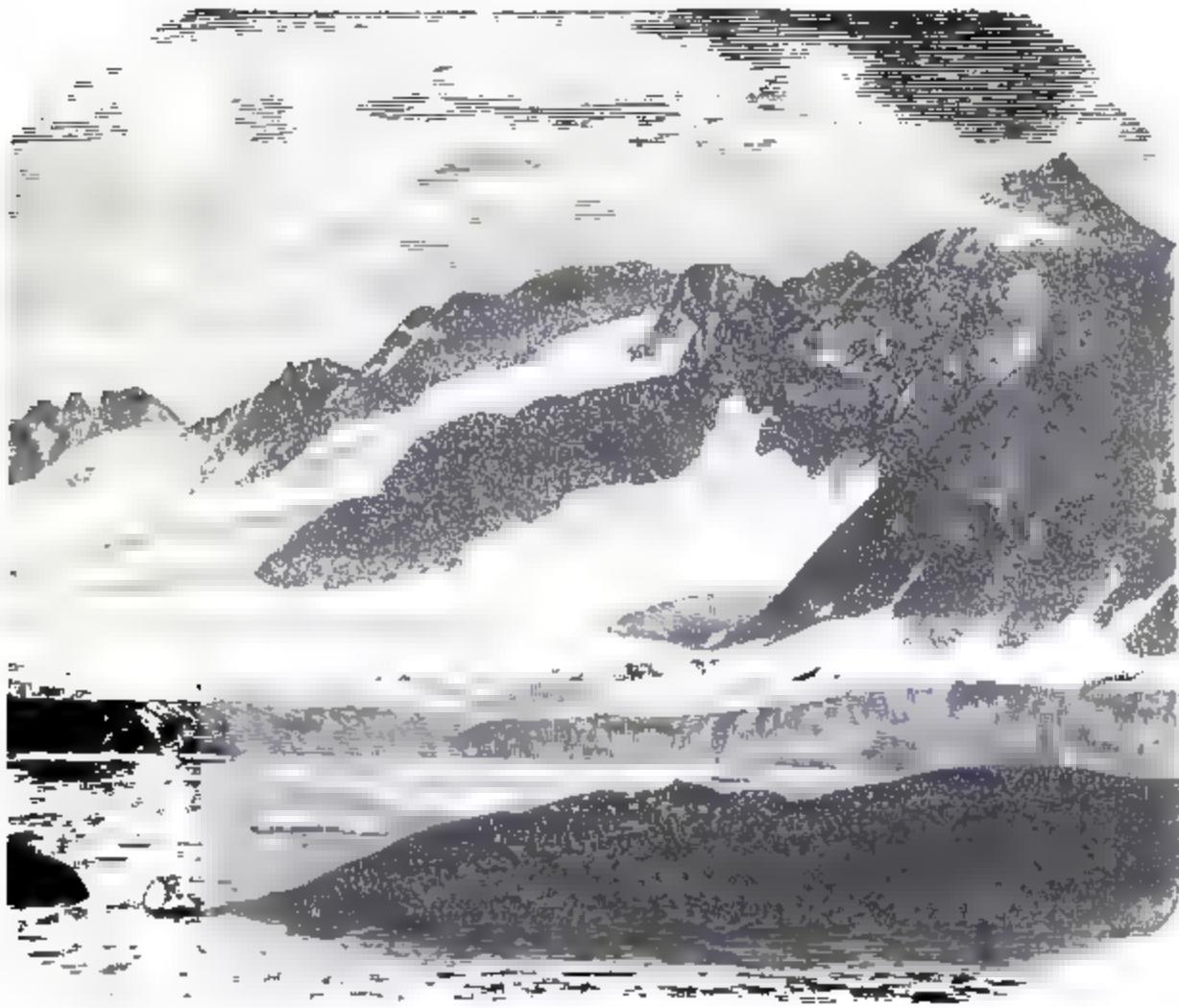
An observatory had been erected on Discovery Bay; and careful notes of the changes of temperature were kept on both ships. One day early in March, the thermometer on the Alert showed $73^{\circ} 7'$, and on the Discovery $72^{\circ} 30'$ below zero; while on the former a mean temperature of $66^{\circ} 29'$ for five days and nine hours, and on the latter, of $58^{\circ} 17'$ for seven consecutive days, was reached. At one time the variation ranged 60° in a few hours. In February the mercury was frozen for fifteen days in succession; and again, later in the season, for about the same length of time. Notwithstanding the cold, which was not only a direct hardship, but also often rendered their breech-loading guns temporarily useless, the hunting parties were quite successful in both camps. Those of the Alert secured six musk-oxen, twenty hares, seventy geese, twenty-six ducks, ten ptarmigans, and three foxes, while the men of the Discovery had still better success in musk-oxen and hares, and also a piece of special good fortune in killing seven seals. They had, moreover, brought from England fish, beef, and mutton, which they hung up on the masts, where they were soon frozen hard, and perfectly preserved. They had also brought some sheep, which they killed from time to time.

"The sun reappeared on the last day of February. From November till February, with the exception of the starlight and occasional moonlight, we had been in darkness," says the chaplain, "not by any means dense, but sufficiently murky to excuse one for passing by a friend without knowing him." And now the time for sledge-exploration was near at hand; and it became important to establish an understanding between the two ships, so as to secure concert of action. Accordingly, on the 12th

of March, 1876, sub-lieutenant Egerton and Lieut. Rawson, accompanied by Christian Petersen, interpreter, were dispatched to attempt once more to open communication with Capt. Stephenson. Four days later they returned to the Alert, Petersen having completely broken down. His hands were paralyzed, and his feet so badly frozen as to require amputation, which, however, did not save him, as, despite all the care and attention of Dr. Colan, the ship's surgeon, he died some three months later. Egerton and Rawson, accompanied by two seamen, resumed the attempt, and were successful; and communication as well as co-operation between the sledge-parties of both vessels were established.

Lieut. Beaumont of the Discovery, in command of eight men, crossed Robeson Channel with great difficulty over the broken and moving ice, and explored the Greenland coast to latitude $82^{\circ} 18'$. Scurvy broke out among his men, and two died before reaching Polaris Bay. Beaumont pushed on to his limit, but four others succumbed soon after turning their faces to the ships. The three that were not disabled hauled the sick with the provisions on the single sledge, always making the journey twice, and often thrice, over the rough, hummocky ice. "The gallant band," says Nares, "struggled manfully onward, thankful if they made one mile a day, but never losing heart." While they were thus laboring on in the heart of a frozen desert, a search party consisting of Lieut. Rawson, Dr. Coppinger and Hans, the Esquimaux, was dispatched; and had the good fortune to fall in with them when the remaining assistants of Beaumont were on the point of also succumbing to the disease. The three officers had now for a time a monopoly of the hauling business, but no more lives were lost, and the party reached their depot of provisions on Polaris Bay, where the well succeeded in shooting game, and the invalids soon recruited. Including a lengthened stay at that point, they were absent from the ship one hundred and thirty-two days. Lieut. Archer surveyed Lady Franklin Sound, and found its head, sixty-five miles inland, surrounded by lofty mountains and glacier-filled valleys. Lieut. Fulford and Dr. Coppinger explored Petermann Fiord or Bay, which also was found to terminate in a steep glacier-front. Some good coal was found on Discovery Bay. These local trips and

Beaumont's Greenland Division of Arctic exploration constituted the Discovery's quota; the Alert's men took charge of the Western and Northern Divisions. Lieut. Aldrich, with seven men, explored two hundred and twenty miles to the west side of Grant Land, finding nothing in sight beyond but the wide-expanded sea. On his return, when met by a relief party under Lieut. May, only one of his men was in a condition to assist in hauling four disabled comrades, while the other two feebly struggled along by the side of the sledge.



DISCOVERY BAY.

It was noticeable that the officers in all these sledge-journeys escaped the scurvy, while nearly all the men were attacked. Capt. Nares was severely criticised, on the return of the expedition to England, for alleged neglect of sanitary precautions, in failing to provide liberal supplies of anti-scorbutic remedies on these trips; but it was learned that the same difference in health between officers and men, was manifest on the vessels. Men who had not been detailed for any of these expe-

ditions, but had all along been within reach of hygienic, medical, and anti-scorbutic treatment, were also attacked, there being no less than thirty-six cases at one time on the Alert. It was therefore probably due to the generally superior physical condition and the greater self-helpfulness of the officers, that the disparity was due; and the same phenomenon may be noticed in any epidemic. The better-kept men, intellectually, morally and physically, always show the smallest percentage of deaths.

MARKHAM'S SLEDGE-JOURNEY.

The great exploring feat of the expedition was performed by Commander Markham's party. Accompanied by Lieut. Parr, Dr. Moss, and Mr. White, one of the engineers, and twenty-eight men, he set out for the north on the 3d of April. The equipment consisted of four eight-men sledges—so called because each was manned by seven men and an officer, two boats for possible navigation in northern waters; four tents, eleven feet long, and about seven wide; and between 1700 and 1800 pounds of provisions to each sledge. The sledges were named Marco Polo, Victoria, Bulldog, and Alexandra. The costume of the men was composed of a thick woolen, blanket-like material, under a suit of duck to repel external moisture. On their feet, besides thick woolen hose, were worn blanket-wrappers and moccasins; and all wore spectacles as a protection against snow-blindness. Each slept in a separate bag of the same heavy woolen material as the day-clothing, and the eight, in the compass of the eleven feet of tent, which again was of the same warm material. Breakfast was taken before quitting the bags, and consisted of a pannikin of cocoa, some pemmican and biscuit. After five hours' travel a lunch of biscuit, with four ounces of bacon and a pannikin of hot tea, was taken; and at the close of the day's journey, varying from ten to twelve hours, when the tents were pitched, and all, except the acting cooks, were snugly ensconced in their bags, a supper of pemmican and tea was served. With the pemmican was always mixed a certain proportion of preserved potatoes.

For the first few days fair progress was made, though from the outset the way was rough and difficult, and the temperature rather low for

comfort—on the 6th it was 35° below zero. On reaching the depot of provisions at Cape Joseph Henry, established before the close of the previous season, the party was re-arranged. Fifteen men, with three sledges, and a total weight in provisions and supplies of 6079 pounds, accompanied Markham and Parr over the high, rough hummocks of the “Sea of Ancient Ice.” On the 10th, “Distance made good,” says Markham, “one mile; distance marched, seven.” On the 12th it was 1½ made good to nine traveled; the 17th, 1¼ to nine; and on the 18th, one to ten, and taking ten hours to do it.” “Course and distance made good, north, four miles; distance marched, thirteen miles,” and similar entries mark the most favorable proportions. But often only a single sledge could be dragged over the hummocks at a time with their combined force, thus requiring five successive trips to cover the same piece of ground; and this was sometimes varied by two additional trips to carry forward a few disabled comrades. On the 19th it was deemed advisable to lighten the burden by leaving one of the boats behind—it was not likely they should need more than one for all the “Open Polar Sea” they would fall in with. This weighed about 800 pounds, but two of the men were prostrated by the scurvy, and had to take its place. “Before quitting the boat, an oar was lashed to its mast, and the mast stepped, yard hoisted, and decorated with some old clothes,” to serve as a signal whereby to reach it on their return.

With the hummocks recurring every hundred yards or so, varying only in height, and the intermediate spaces covered with drifted snow-ridges, and the temperature almost constantly below zero, their progress was necessarily slow—very slow, snail-like, and tortuous. “The journey,” says Nares, “was consequently an incessant battle to overcome ever-recurring obstacles, each hard-worn success stimulating them for the next struggle. A passage-way had always to be cut through the squeezed-up ice with pickaxes, an extra one being carried for the purpose, and an incline picked out of the perpendicular side of the high floes, or roadway built up, before the sledges—generally one at a time—could be brought on. Instead of advancing with a steady walk, the usual means of progression, more than half of each day was expended

by the whole party facing the sledge and pulling it forward a few feet at a time." On the last day of April they were compelled to halt in the presence of a new enemy, the fog, which endangered their becoming entangled in a labyrinth of hummocks. This weary work was continued through the first third of May, with a constant increase in the number of the sick, when it was decided to leave them behind, while the stronger ones were to make a final push for the highest point attainable. A camp was established for the invalids, provisions and supplies on the 11th, and left in charge of the cooks. On the morning of the 12th, Markham and Parr, with such of the men as were still in a condition to venture forward, set out, encumbered only with a few instruments and the national colors. Markham thus relates the last advance: "We had some very severe walking, through which the labor of dragging a sledge would be interminable, and occasionally almost disappearing through cracks and fissures, until twenty minutes to noon, when a halt was called. The artificial horizon was then set up, and the flags and banners displayed, these fluttering out bravely before a southwest wind, which latter, however, was decidedly cold and unpleasant. At noon we obtained a good altitude, and proclaimed our latitude to be $83^{\circ} 20' 26''$ north, exactly three hundred and ninety-nine and one-half miles from the North Pole. On this being duly announced, three cheers were given, with one more for Capt. Nares; then the whole party in the exuberance of their spirits at having reached their turning-point, sang 'The Union Jack of Old England,' by the grand Palæocystic sledging chorus, winding up like loyal subjects, with 'God Save the Queen.' " In the camp they celebrated the event with increased spirit, even the invalids growing more cheerful in the prospect of a speedy return. Some extra refreshments, reserved for the occasion, were distributed, adding to the general exhilaration. The leaders, Markham and Parr, though they had reached the highest point ever attained, were no more than half content at the meager result of so many hardships. But they were destined soon to find that the decision to return was the salvation of the party, as almost all the men were stricken down with scurvy before reaching Depot Point, near Cape Joseph Henry. By forced marches and in-

domitable energy they succeeded in getting the men to camp on June 7; and while Markham watched and labored for their comfort, Parr set out for the Alert, thirty miles away. Equipped with only a walking-stick and a couple of light rations, he trudged off alone to hurry up a relief party, stimulated by the consciousness that on his exertions depended the life-chances of those he had left behind. Fortunately he proved equal to the emergency, and in twenty-four hours reached the ship. Before midnight of the 8th, Capt. Nares was on the way to Depot Point, at the head of a relieving party. Lieut. May, Dr. Moss, and a seaman, with a light dog-sledge, were sent forward as a lightly-equipped advance party, and reached the camp in fifty hours from Parr's departure. Short as had been the interval, one of the sick, George Porter, had died, and was already buried in the snow; but no other life was lost. Of the fifteen men who left Depot Point two months before with Markham and Parr, only three were able to assist in dragging the sledges back; three others struggled along behind, often falling, and sometimes fainting; while nine had been utterly prostrated and had to be carried on the sledges in the tedious manner already described. They had reached seventy miles north of Grant Land over the Palæocystic ice, as Nares called it.

Capt. Nares concluded to return to England. The condition of his crews, much enfeebled by disease, and the results obtained being substantially equal to any he was likely to secure by a prolonged stay, determined him to abandon all further attempts. While he could not doubt that another season's work would extend the area of land explored on either side of Robeson Channel, he was firmly convinced that no advance to the north, sufficient to compensate for the exposure of his men and ships, was attainable—that in a word, “The Pole was impracticable.” There can be no question that such is the fact in that direction, unless it will be found that some seasons are more favorable than the one of 1876. It is possible that the more extended meteorological observations, now [1882] being prosecuted in Arctic regions and elsewhere, may lead to the detection of regular cycles of temperature, with their periods of greatest and least cold, and thus enable Arctic explorers to choose the most favorable season for the coming attempt to traverse the remaining

four hundred miles to the Pole. But with the "Sea of Ancient Ice" as Nares found it, no amount of human energy or heroic daring could achieve the feat of reaching it.

Among the acts performed by this expedition, one of international courtesy is worthy of mention. It was a pleasing and graceful act to the memory of a great navigator who has been undeservedly underrated by some, because his methods were peculiar. These forget that each fresh advance is made possible only by the departure of each new pioneer from the beaten track of his predecessors. On the 13th of May, 1876, Capt. Stephenson, in the presence of twenty-four officers and men of Nares' expedition, erected at Hall's grave an appropriate brass tablet prepared for the purpose in England.

And later, in his report to Parliament, Nares bore testimony to the accuracy of Hall's observations, though with confessedly defective instruments, in these words: "The coast line (west from Kennedy Channel) was observed to be continuous for about thirty miles, forming a bay, bounded toward the west by the United States range of mountains, with Mounts Mary and Julia and Cape Joseph Henry, agreeing so well with Hall's description that it was impossible to mistake their identity. Their bearings, also, although differing upward of thirty degrees from those of the published chart, agreed precisely with his published report."

Capt. Nares now concluded to return to England; and, encountering many difficulties from storm and ice, arrived home on the 27th of October, 1876, after an absence of sixteen months, with his ships uninjured, and with only the loss of life already mentioned. Notwithstanding some adverse criticism from stay-at-home navigators, closet theorists, and paper philosophers, the expedition was properly regarded as a great success, and its heroes were deservedly honored by their country with substantial tokens of regard, as well as with the hearty plaudits of the people.

CHAPTER LXXIV.

SCHWATKA EXPEDITION — THE EOTHEN — OFFICERS AND CREW — IN
KING WILLIAM'S LAND—CONFIRMATION OF RAE'S TESTIMONY—
GRAVE OF LIEUT. IRVING—HOMAGE FROM AMERICA AND GREAT
BRITAIN.

The fate of Franklin's crew and ships has continued to interest inquiring and sympathetic minds on both sides of the Atlantic, even up to the present. The public suspense regarding Franklin's individual decease had been relieved by M'Clintock in 1859; but there still remained the mystery of the ships, of the fate of their companies, and of the record of their achievements. Some idea of their general course could be gathered from the scanty records of Gore and Crozier, but this was unsatisfactory and vague, and left a deep want—a demand for knowledge—un supplied. The information gained by Hall on his second voyage confirmed the hypothesis of Rae, that the most of the party had died by starvation; though concerning the actual course of Franklin and the fate of his ships, Hall left the world no wiser than before.

Early in the summer of 1878, Lieut. Schwatka, U. S. A., who had taken an active interest in the subject from boyhood, asked for leave of absence from his place of duty on the plains, came to New York and asked permission to organize a search party, for the purpose of discovering the supposed records of Franklin's last voyage. After listening to his proposition, Judge Daly, of the Geographical Society, gave him all the information in his possession concerning the probable whereabouts of the missing treasures; commanding him also to Gen. Sherman and indorsing his application to be detailed to command the exploring party. The lieutenant also conferred with Messrs. Morrison & Brown, of South street, concerning the use of a whaling vessel for the transportation of the party to the scene of their labors. Their only available ship, the

Eothen, was at sea, but upon her arrival in New York her owners offered her for the use of the expedition, and she was refitted in the best manner for the comfort of the party.

Prior to his departure Lieut. Schwatka received instructions for his procedure as follows, from Mr. Morrison: "Upon your arrival at Repulse Bay you will prepare for your inland journey by building your sledges and taking such provisions as are necessary. As soon as sufficient snow is on the ground you will start from King William's Land and the Gulf of Boothia. Take daily observations, and whenever you discover any error in any of the charts you will correct the same, marking thereon also any new discoveries you may be fortunate enough to make." He was further admonished to carefully preserve all records found, and keep them safely in his own possession or to intrust them to his Esquimaux interpreter. Finally, he was advised, even though his expedition proved a failure in its particular end, to make it a geographical success, as his facilities for doing so would be excellent.

The Eothen sailed from New York on the 19th of June, 1878, being accompanied down the bay by several tugs containing the friends and relatives of the explorers. Her officers and crew were as follows: Captain, Thomas F. Barry; Jeremiah Bonepus, chief mate; James Piepper, second mate; James Kearney, boatswain; H. Omenheuser, cooper; Frederick Woern, blacksmith; Charles Budley, carpenter, and ten seamen. The exploring party was composed of five persons: Lieut. Frederick Schwatka, commander; Col. W. H. Gilder, a New York correspondent; Joseph Ebierbing, Esquimaux guide and interpreter; Henry E. Klietchak, civil engineer, and Frank Mellers, assistant engineer.

After leaving the investigating party at the scene of their adventures, the Eothen cruised about for whales a short time, and finally returned to New London.

Schwatka and his comrades spent the winters of 1878-9 and 1879-80 in investigating King William's Land, the supposed last resting place of most of Franklin's men. In this work they were greatly assisted by the activity, intelligence and willingness, both of their native interpreter whom they had brought, and also of the Esquimaux of the neighbor-

hood which they were examining. In the summer of 1880 many interesting relics of Franklin and his party were discovered. There were many pieces of wood, iron and other material, which by names marked upon them, or by other signs were proved to have belonged to one of the two ships. Many articles with private marks were discovered. The general testimony borne by Rae in 1854 received ample confirmation, and many additional proofs of the fate of Franklin and his men were



GRAVE OF LIEUT. IRVING.

unearthed. Not only was the record of M'Clintock's discovery in 1859 found where he had deposited it, but the camp of Capt. Crozier, which had been found and occupied by his whole party was discovered, with many relics of interest. There were several cooking-stoves with their accompanying copper kettles, besides clothing, blankets, canvas, iron and brass instruments, and an open grave, where was discovered a quantity of blue cloth, part of which was wrapped around a body.

Upon one of the stones at the foot of this grave a medal
which was thickly covered with grime, and so much the
clay stone on which it rested as nearly to escape detection.
be a silver medal, two and a half inches in diameter, with
George IV., surrounded by the words: "Georgius IIII., D
arum Rex, 1820;" on the obverse, a laurel wreath surround
ond Mathematical Prize, Royal Naval College;" these
ing the following inscription: "Awarded to John Irving
1830."

This place, then, was proved without a doubt to be
Lieut. Irving, third officer of the Terror. The body, as
skeletons found, was buried decently and the best tomb
could be improvised were set up to mark the spots occupied
ish dead. Every endeavor was used to discover the graves
Franklin, but without success. The search for the records
generally accepted theory, that those important documents
had been irrecoverably lost or destroyed.

On his return late in the summer of 1880 Schwatka received
homage from the American Government for his discovery
from the English nation, for his delicate and humane services
mains of the lost English subjects. This found voice in the
of many distinguished Englishmen, among them Capt. Sir
Nares, Mr. Clements R. Markham, Sir Leopold M'Clintock,
of Arctic fame. All agreed that Lieut. Schwatka had performed
able service, and one whose performance by an American
the utmost gratitude from all Britain.



CHAPTER LXXV.

SWEDEN IN ARCTIC EXPLORATIONS — NORDENSKIÖLD — NUMEROUS POLAR VOYAGES — THE SOFIA IN KING'S BAY — VOYAGE TO THE MOUTH OF THE OBI — SAMOYED TENTS — A PROBLEM IN NAVIGATION SOLVED — NORDENSKIÖLD'S PREPARATION — HIS SLEDGE-JOURNEYS — FUNDS PROVIDED — THE VEGA PURCHASED.

Though Sweden was late to take part in Arctic exploration, she has already reached an important position among the nations in the scale of results actually achieved. For this she is largely indebted to the skill and enterprise of her adopted son, Adolf Eric Nordenskiöld, a native of Helsingfors, the capital of Russian Finland. In consequence of a patriotic toast given by him at a supper party in 1855, at the age of twenty-three, he was deprived by Count Von Berg, the Russian governor-general, of a small official position he held in the museum of his native city. To this was added the insult of being declared incapable of holding office in the university, where he had continued his studies since graduating with distinguished honor some years before, and where he had entered as a student in 1849. He was an ardent nationalist, and a thorn in the side of the paternal government of the representative of the czar. The ancient constitution had been guaranteed to Finland at the union with Russia, in 1809, but the guarantee has proved illusory, and the people are ruled almost as autocratically as in Russia.

Nordenskiöld left the country and took service with Sweden, becoming State mineralogist in 1858, and evincing from the first an active interest in Arctic exploration. The very next year, 1859, he is found engaged in the expedition fitted out at the expense of Otto Torell; and from that year to 1878, he took part in no less than seven Arctic expeditions, in all of which he was either the leader, or held an important place. The expenses of these were defrayed in part by private sub-

scription, and in part by the Swedish government, Dr. Oscar Dickson, a wealthy merchant of Othenburg, being a liberal contributor to five of them. These expeditions were, to Spitzbergen in 1861 and 1864; an attempt to reach the Pole, in 1868; to Greenland, in 1870; to Spitzbergen again, in 1872-3; to the Yenisei River in Siberia, in 1875, and again in 1876. Besides these there were two Arctic voyages, in 1868 and 1871, by Baron Von Otter, Swedish Councillor of State, and Minister of Marine. By all these voyages the stock of information in relation to Spitzbergen and Greenland and the adjoining seas, was largely increased; and the intervals were devoted by Nordenskiöld to studies and investigations relating to what he had from his first arrival in Sweden made a life-work.

In the polar voyage of 1868, with the steamer *Sofia*, latitude $81^{\circ} 42'$ was reached, and the attempt to push farther north from the Seven Sisters of the Spitzbergen group is thus described by Nordenskiöld: "Northward lay vast masses of ice, as yet broken, it is true, but still so closely packed that not even a boat could pass forward, and we were therefore obliged to turn to the southwest, and seek for another opening in the ice; but we found on the contrary, that the ice-limit stretched itself more and more to the south. On the way we had in several places met ice that was black with stones, gravel, and earth, which would seem to indicate the existence of land still farther north. Moreover, the ice itself had a very different appearance from that which we had met in these tracts at the end of August. It consisted now, not only of larger ice-fields, but also of huge ice-blocks. Already in the beginning of September the surface of the ocean, after a somewhat heavy fall of snow,



PROF. A. E. NORDENSKIÖLD.

had shown itself between the ice-masses, covered with a coating of ice, which, however, was yet thin, and scarcely hindered the vessel's progress. Now (toward the close of September) it was so thick that it was not without difficulty that a way could be forced through it."

In a gale, a few days later, the ship was dashed against an iceberg, and began to leak so badly that on reaching Amsterdam Island on the 4th of October, after eleven hours at the pumps, there were two feet of water on the floor of the cabin. Fortunately the engine-room was protected by water-tight bulkheads, and by great exertion the overflow was kept from reaching the fires. The leak was temporarily stopped, and they succeeded in reaching a more secure harbor in King's Bay, where at ebb-tide they were able to make more permanent repairs, and render the ship once more completely water-tight. It was found, however, that she was radically hurt, two of her ribs having been broken in the collision with the iceberg; and it was deemed prudent to return home. The voyage showed that the ice of the Spitzbergen seas to the north was still as impracticable as Parry had found it forty years before.

In the voyage of 1875 to the mouths of the Obi and Yenisei, Nordenskiöld landed on the 8th of August on the peninsula of Yalnial, that is, in Samoyed, Land's End, separated from Beli Ostrov or White Island, by Malygin Sound. It had been reached in 1737 by Selifontov in a reindeer-sledge, and was first mentioned in the narrative of Skuratov's journey of the same year. A more southerly portion of it was traversed by Sujeff in his overland journey from Obdorsk to the Kara Sea in 1771. In the second voyage of the younger Krusenstern (Paul) in the Kara Sea in 1862, when the Yermak was abandoned on the coast of this great Samoyed peninsula far to the south, in latitude $69^{\circ} 54'$, the commander and crew escaped to the land, destitute of everything, but had the good fortune to fall in with a Samoyed elder, the owner of 2,000 reindeer, who took them to Obdorsk about 600 miles distant by the route taken. "We saw no inhabitants," says Nordenskiöld, "but everywhere along the beach numerous tracks of men—some of them barefoot—reindeer, dogs, and Samoyed sledges were visible. On the top of the strandbank was found a place of sacrifice, consisting of forty-five bears' skulls

of various ages placed in a heap, a large number of reindeer lower jaw of a walrus, etc. From most of the bears' skulls teeth were broken out, and the lower jaw was frequently eating. Some of the bones were overgrown with moss, and the earth; others had, as the adhering flesh showed, been during the present year. In the middle of the heap of bones erect pieces of wood. Two consisted of sticks a metre length, with notches cut in them, serving to bear up the bears' skulls, which were partly placed on the points of the sticks and hung up by means of the notches, or spitted on the sticks, having holes cut in the skulls. The two others, which clearly proper idols of this place of sacrifice, consisted of driftwood, on which some carvings had been made, to distinguish the mouth and nose. The parts of the pieces of wood intended to represent the mouth, had recently been besmeared with blood, and at the heap of bones the entrails of a newly-killed reindeer were found. On the side were found the remains of a fire-place, and of a middle of reindeer bones of various kinds, and the lower jaws of the animals. On at some distance from the coast, and at one place passing the shore and a long series of blocks of ground-ice, which lay along the coast in a depth of nine to sixteen metres ($29\frac{1}{2}$ fms.). During the night we passed a place where five Samoyed tents were pitched, in whose neighborhood a large number of reindeer

The results of those several voyages are thus summed up by S. A. Skjold: "The exploring expeditions, which, during the reign of Gustavus III., have gone out from Sweden toward the north, have long had a truly national importance, through the lively interest taken in them everywhere, beyond as well as within the country, through the considerable sums of money that have been spent by the State, and above all by private persons; through which school they have formed for more than thirty Swedish expeditions, through the important scientific and geographical results yielded; and through the material for scientific research, which has been collected for the Swedish Royal Museum, and will



RANOTRED ENCAMPMENT.

it, in respect of Arctic natural objects, the richest in the world. To this should be added discoveries and investigations which are, or promise in the future to become, of practical importance; for example, the meteorological and hydrographical work of the expeditions; their comprehensive inquiries regarding the seal and whale fisheries in the Polar seas; the pointing out of the previously unsuspected richness in fish of the coasts of Spitzbergen; the discoveries on Bear Island and Spitzbergen of considerable strata of coal and phosphatic minerals, which are likely to be of great economic importance to neighboring countries; and, above all, the success of the two last expeditions in reaching the mouths of the large Siberian rivers—the Obi and Yenisei—navigable to the confines of China, whereby a problem in navigation, many centuries old, has at last been solved."

These experiences and labors had prepared Nordenskiöld for the great triumph he was to achieve a few years later, making his unparalleled success the hard-earned and well-deserved result of constant endeavor, not a hap-hazard achievement or lucky hit. He fought a hard and long-continued series of battles with the ice king, ascertaining both his strong and his weak points. Six times he had met the enemy on land and sea, in Greenland and Spitzbergen, before encountering him off the north coast of Siberia. With the two voyages thitherward in 1875 and 1876, Nordenskiöld himself connects his seventh voyage in 1878, which was destined to make him one of the most famous navigators the world has ever seen. "After my return from the voyage of 1876," he says, "I came to the conclusion that on the ground of the experience thereby gained, and of the knowledge which, under the light of that experience, it was possible to obtain from old, especially from Russian explorations of the north coast of Asia, I was warranted in asserting that the open navigable water which two years in succession had carried me across the Kara Sea—formerly of so bad repute—to the mouth of the Yenisei, extended in all probability as far as Behring's Straits, and that a circumnavigation of the Old World was thus within the bounds of possibility."

The great navigator, Hudson, 270 years before, had satisfied himself that the Northeast Passage could never be found an available route for

the commerce of the East. Yet the earlier efforts in that direction, under Willoughby and Chancellor, in 1853-56, had opened commercial relations with Russia, on the White Sea. It was therefore rightly judged by Nordenskiöld that, besides the geographical and scientific interest attaching to navigation of the Arctic Ocean from the Atlantic to the Pacific, no trifling commercial results would accrue from opening a way to the mouths of the great rivers of Siberia. He knew that a northeast route to "Cathay" was no longer a necessity to the trade of North Europe, since the Suez Canal had become the highway of trade to the East, but he also recognized "that a practicable route of maritime intercourse between the gulfs and estuaries of the Obi and Yenisei and the Atlantic, on one hand, and the mouths of the Lena and the Pacific on the other, would open half a hemisphere to commerce, render possible the exportation of agricultural and forest products from immense regions of remarkable fertility, and thus furnish the inhabitants with the means of exchanging the products of the soil with the industrial products of Europe and America, those conveniences so necessary to the comfort and welfare of the poorest denizens of more favored climes. It will always be difficult to introduce on a large scale, by any other route, the heavy machinery, farm-engines, steamboats, etc., which constitute in our day the levers of a country's civilization."

Besides the very practical and indispensable education which Nordenskiöld had thus acquired in the very best school, he had made himself familiar with all that had been done by Russian navigators, explorers and surveyors along the north coast of Siberia, as well as with the results attained and the experiences gained by the great navigators of every land. He had made sledge-journeys like Wrangell and Parry over the sea, and like Middendorf and Simpson over the land. He now felt that an exceptional opportunity had arisen for solving a great geographical problem, which for more than 300 years had occupied the attention and excited the competition of the foremost commercial nations and most daring navigators; and which, if viewed in the light of a circumnavigation of the Eastern hemisphere, had been a subject of geographical interest for at least two thousand years. He had learned, as has been else-

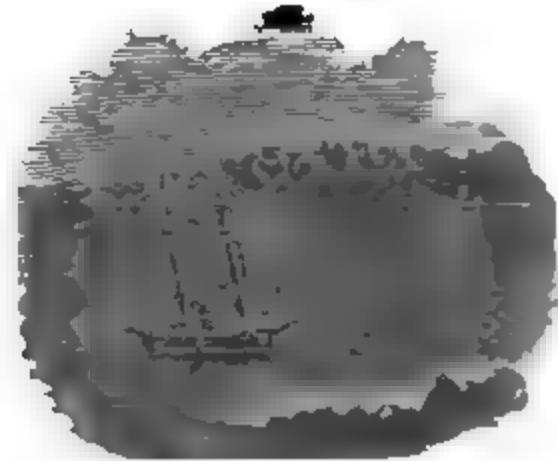
where related in this volume, that Russian navigators, especially Prontschishev, Laptev and Chelyuskin, with very inadequate resources, had come very near doubling the north point of Asia. In view of these facts, and his own experience of those regions in 1875 and 1876, he reasonably inferred that their failure was due rather to the imperfections of the vessels employed, than to any insurmountable obstacles presented by the ice, and that a strong, well-equipped steamer would be able to penetrate where they had failed. These Siberian coasters were too frail to encounter the ice-pack, and being usually flat-bottomed, keelless, and held together with willows, were equally unfit for the open sea. Nor had it escaped his notice that these Russian navigators had all strangely miscalculated the most favorable season of the year for their efforts. In 1740 an expedition under the mates Minin and Sterlegoff, after two experiments in 1738 and 1739, had succeeded in reaching $75^{\circ} 15'$ north of the mouth of the Yenisei, when they returned on the 2d of September, because of the supposed lateness of the season.

Nordenksiöld was in possession of some funds placed at his disposal for the purposes of exploration by the merchant A. Sibiriakoff; but concluding to give the new expedition a greater scope and a more adequate outfit than these funds would warrant, he applied to the king to ascertain whether any aid might be expected from the public funds. "King Oscar, who already as crown prince had given a large contribution to the Tarell expedition of 1861, immediately received the proposition with special warmth." Eventually all the expenses, less, however, the contributions of the government—in pay, rations and supplies of three officers, including a physician, and seventeen men detailed from the navy for service in the expedition; in equipment of the vessel at the national dock-yards at Karlskrona, not, however, to exceed \$6,675, and in naval stores, including medicines, to the extent of \$2,750—were defrayed by the king, Dr. Dickson, and Mr. Sibiriakoff. Dickson acted as banker, supplying ready cash as needed by the expedition.

Besides his share of the general expense, Sibiriakoff authorized Nordenksiöld to build a small steamer at his expense, to act as tender or store-ship to the exploring vessel as far as the mouth of the Lena, whence

she was to return with a cargo on his account; and to fit out two merchantmen, one a steamer and the other a sailing vessel, for the mouth of the Yenisei, which were to have cargoes both ways—European goods out, and Siberian grain back.

The next important preliminary was the purchase of a vessel suitable for the voyage, and the choice fell upon the now historic Vega, which was thus described by the owners when offered for sale, a description to which the purchasers found no reason to take exception: "The steamer Vega was built at Bremerhaven in 1872-3, of the best oak, and under special inspection. She has twelve years' first-class register, and is of 357 tons gross, and 299 net, burden. She was built and used for whale fishing in the North Polar Sea, and strengthened in every way necessary, and commonly used for that purpose. Besides the usual timbering of oak, she has an ice-skin of greenheart, wherever the ice may be expected to come at her timbers. The dimensions are—Length over deck, 142.3 feet; keel, 123.3; breadth of beam, 27.5; and depth of hold, 15 feet. The engine, of sixty horse-power, is on Wolff's plan, with excellent surface condensers, and requires about ten (twelve, it proved) cubic feet of coal per hour. The vessel is fully rigged as a barque, and has pitch-pine masts, iron wire rigging, and patent reefing topsails. She sails and manœuvres uncommonly well, and under sail alone attains a speed of nine to ten knots. During the trial trip the steamer made seven and a half knots, but six to seven knots per hour may be considered the speed under steam. Further, there are on the vessel a powerful steam winch, a reserve rudder, and a reserve propeller." She was, however, thoroughly overhauled, strengthened and refitted at the naval dock-yard.



CHAPTER LXXVI.

FURNISHING AND MANNING OF THE VEGA—THE LENA—THE FRASER
— THE EXPRESS — THE VEGA LEAVES GOTHENBURG — FIRST
SCIENTIFIC NOTES—DWARFED TREES—BARENTZ' HOUSE DISCOV-
ERED — CHABAROVA — SAMOYED LIFE — THEIR DEALINGS WITH
THE RUSSIANS — THE HOUSEHOLD GODS OF THE SAMOYEDS — A
TADIBE.

Every modern appliance had been secured. Scientific instruments for astronomical, physical, meteorological and geographical researches had been furnished by the Royal Academy of Sciences, and ample provisions made for the health and well-being of the ship's company, when the Vega, already described, left the harbor of Karlskrona on the 22d of June, 1878, on her memorable voyage. Her crew consisted of seventeen men of the Royal Navy, in charge of Lieuts. A. A. L. Palmer and E. C. Brusewitz, with Palander in command of the ship, as acting captain, and R. Nilsson as sailing-master. Lieuts. A. Hovgaard, of the Danish Navy, and C. Bove, of the Italian, who had obtained permission to accompany the expedition, and serve, respectively, as superintendents of its meteorological and hydrographical work, were also on board. On the 24th the Vega arrived at Copenhagen to ship provisions, and leaving on the 26th, put in at Gothenburg on the 27th to take aboard the scientific equipments and the gentlemen in charge of the several departments of that work—F. R. Kjellman, botanist; A. J. Stuxberg, zöologist; Lieut. O. Nordquist, of the Russian Guards, assistant zöologist and interpreter; and E. Almquist, lichenologist and medical officer of the expedition. Besides the Vega, with her company of thirty persons, of whom only four were seamen, the others being officers, engineers and scientists, the other three vessels already referred to, and which belonged to the merchant, Sibiriakoff, were at the disposal of the commander of

the expedition, consisting of quite a little fleet, with the Vega as a sort of flag-ship. They were the steam-tender Lena, Christian Johannesen, captain; the steamer Fraser, Emil Nilsson, captain, and the sailing vessel, Express, under Captain Gunderson, with their respective corps of petty officers and crews, and S. J. Seribrenkoff as supercargo and representative of the commercial interests of the owner. The two merchantmen were to meet the Vega and her tender at Chabarova on Yugor Schar or Vaigats Sound, lying between the island of that name and the Russian mainland, which was also the appointed rendezvous of the Lena, should she get separated from the Vega. The name Yugor is derived from the old name of the adjoining portion of the continent, Jugaria or Yugaria, the supposed intermediate seat of the Hungarians, between their departure from their original Tartar home in Central Asia and their migration southward to their present location, toward the close of the ninth century of our era.

On the 4th of July the Vega left Gothenburg, but encountering head-winds off the west coast of Norway, her progress was slow, and it was not until the 17th that she reached Tromsoe, where she was to take aboard the commander, and be joined by the Lena. Here they shipped three walrus-hunters, and such special Arctic equipments as reindeer skins, besides coal and water. On the 21st, about fifteen days later than intended, they set out on the regular voyage, making for Maossoe, a small island of the Northern Archipelago, where they were to have their last mail facilities. Here they were detained three days by adverse winds, instead of that many hours, as anticipated. They were hospitably entertained by the inhabitants, and Nordenskiöld records as the chief advantage of the delay an effective remedy for scurvy. The cold, wet climate of the island makes the disease an endemic, which attacks all classes and conditions of the inhabitants; but, "According to a statement made by a lady resident on the spot, very severe attacks are cured without fail, by cloud-berries preserved in rum. Several spoonfuls are given the patient daily, and a couple of quarts of the medicine is said to be sufficient for the complete cure of children severely attacked by the disease." The cloud-berry is recognized as an efficient anti-scorbutic, and

perhaps may be thus more conveniently taken, but it owes nothing of its efficacy to the rum.

Among the first scientific notes of the expedition was one, which was due to their unexpected detention. It was observed that the sweet birch now grows only in favored spots so far north, while formerly the outer islands of the Archipelago were covered with a luxuriant growth, indica-



THE CLOUD-BERRY.

ting a gradual lowering of the general temperature. In Siberia it grows to about a degree further north, or 72° , owing to the large volume of warm water borne by the great rivers every summer from the more genial southern climes through which they flow. The dwarf-birch is found six degrees farther, on the Ice Fiord in Spitzbergen, $78^{\circ} 7'$, but rises there only to a few inches above the ground. It is not, however,

any species of the birch that grows farthest to the north in Siberia, but a species of the hardy birch.

Leaving Maossoe on the 25th, they steamed through Margeroe Sound, between the island of that name, the northern extremity of which is known as North Cape, and the mainland of Norway. The Vega and Lena parted company the first night in a fog, but each proceeded on its way to Chabarova. The Vega was steered due east to within a few miles of the west coast of Nova Zembla, which they sighted on the 28th at $70^{\circ} 33'$ by $51^{\circ} 54'$, east, in about seventy-five



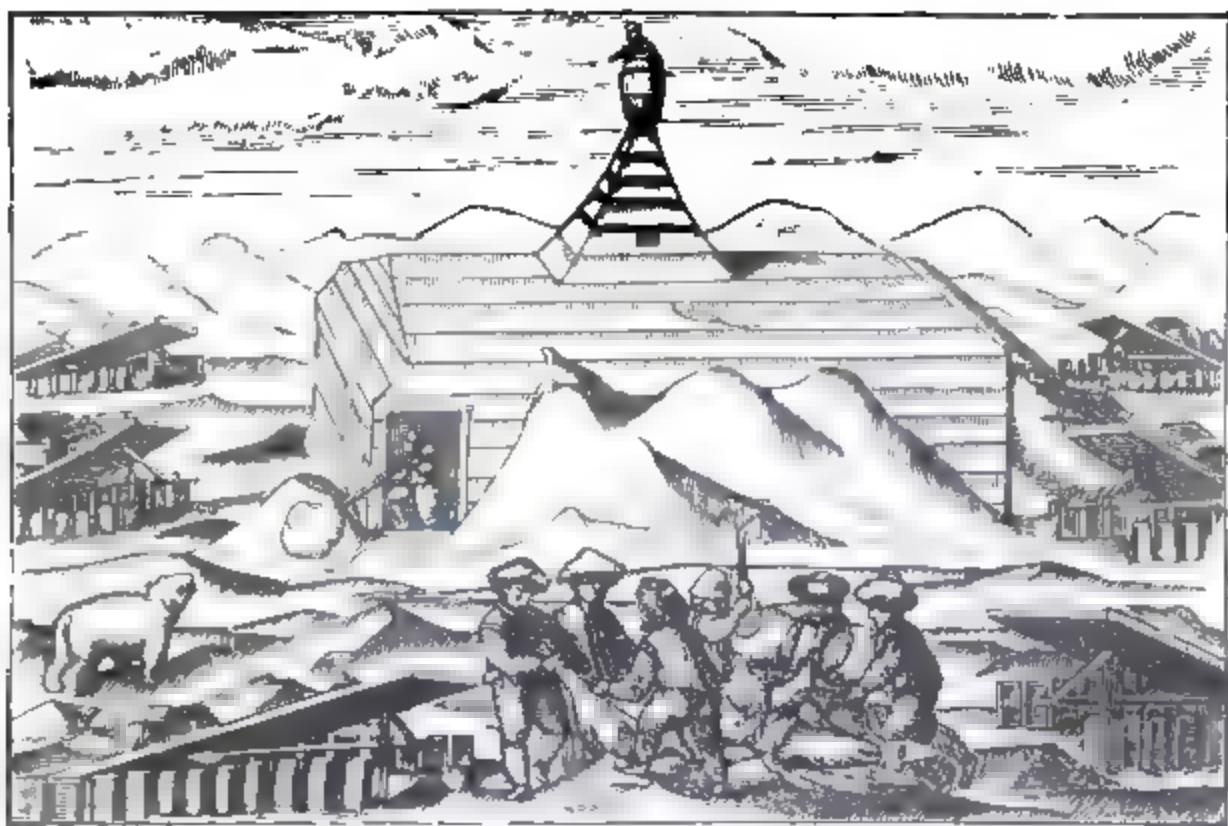
DWARFED TREES IN SIBERIA.

hours from Maossoe. This was about midway between the Matotschin Schar, or Sound, and Yugor Schar. The Matotschin Sound divides Nova Zembla into two large islands of unequal size, the larger terminating at Barentz Land away to the north, in latitude 77° , the chief interest in which is connected with the fate of the early navigator, thus commemorated. An account of his voyage has been given in its proper place; but a fresh interest has been awakened by the recent discovery of the winter-house erected by him and his companions at Ice Haven, in Barentz Bay, on the east coast of Barentz Land, a few minutes north of latitude 76° . On the 9th of September, 1871, Capt. Carlsen, a Norwe-

gian, while circumnavigating Nova Zembla, discovered with many interesting relics, in a remarkable state of preservation, and brought them home, whence they found their way, through the instrumentality of Barentz's countrymen to the Hague, where they are now preserved. "No man," says Markham, "has entered the little room where the famous discoverer sojourned during the long winter of 1596-7, for nearly three centuries. There stood the cooking pan in its old place, the old clock against the wall, the arms, the tools, the vessels, the instruments and the books that beguiled the lonely soul of the discoverer during that long night 275 years before. Perhaps the most touching object was the pair of small shoes. There was a little cabin-boy among the crew who died, as Gerrit de Vere tells us, during the winter, and his shoes having been left behind. There was a small harp which he had played by that poor boy, which still gives out a few notes."

The more southern of the twin islands of Nova Zembla is called the Great Island, extending from Vaigats Island, to the south by the Kara Part, or Kara Sea. The part of this island which was now sighted by the company is known as Gooseland, because of the great number of geese and swans which breed there. By the end of June, or early in July, the greater part of Gooseland is free of snow, and soon the Arctic Circle closes all its splendor for a few weeks. Giving themselves up to the sea-room, but in the main following the trend of the land, they steered westward, to the southeast, and farther on, east-southeast, to Vaigats Island, where they had an excellent view, the air being exceptionally clear. From the Murman Sea to the west it seemed a level, grassy plain, broken only by the Sound, low ridges were seen on the east side, which were regarded by Nordenskiöld as the last spurs of the great mountain chain. They found the merchantmen awaiting them when they reached Chabarova on the 30th, and the Lena put in an appearance on the 1st. The Fraser and Express had left Vardoe Island off the coast of Norway on the 13th, and had been in harbor since the 17th.

The village of Chabarova was found to consist of a single campment and several cabins. These were occupied by nine families, who had come from Pustosersk, about 400 miles distant, on the Petchora River.



BARENTZ' HOUSE. (EXTERIOR.)



BARENTZ' HOUSE. (INTERIOR.)

Samoyed servants. The tents were occupied by a Samoyed company, which make this its usual summer rendezvous, Vaigats Island being the chief pasturage for reindeer. The Russians who form a fishing company, quit Pustosersk after Easter and return about the middle of October. Besides their equipments for fishing they bring such articles as are suited for trade with the Samoyeds; and with barter, fishing and trapping of reindeer, of which they own several hundred, they have a profitable sojourn. The annual product of train oil alone amounts to from 1,200 to 1,500 pounds, of which their patron St. Nicholas receives a regular tenth, being made an equal shareholder with the nine members of the fishing guild. The summer occupations of the Samoyeds are similar, and in winter some retire to Pustosersk, while others go to Western Siberia, where corn is cheap. They own great numbers of reindeer, the chief man, or elder of the tribe, owning about a hundred. Instead of dividing with St. Nicholas, although most of them are baptized, and are nominally Christians, they reserve their offerings for the shrines, or groves, of their ancient idols, of which there are several sanctuaries on Vaigats Island. They have been making pilgrimages of a thousand miles to the more famous altars of sacrifice, of the ancient religion. The Russians call these images *bolvani*, that is, rude images—equivalent to the Samoyed *sia*, physiognomy; and exhibit toward them a sort of religious respect. Indeed, each party is getting remarkably tolerant of the superstitions of the others. The *ikons* or sacred images of the Russian church and the *bolvans* of the Samoyeds hold about the same relation to the religious systems of their respective worshipers. In domestic life there are two important differences between the two races, one in favor of the Samoyeds, the other in favor of the Russians, factors of advancing civilization. "The Samoyed has three wives; even sisters may marry the same man. Marriage is contracted without any solemnity. The wives are considered by the Samoyeds as equal rights with themselves, and are treated accordingly. This is a remarkable, as the Russians, like other Christians, consider women as in certain respects inferior to the man." Yet a Samoyed wife-murderer has been known to plead in his own defense that he had been compelled to do it by his wife.

"he had honestly paid for her, and could surely do as he liked with his own."

This little horde temporarily sojourning at Chabarova is one of several similar bands into which the race divides up for convenience of seeking sustenance. The race now numbers only about 10,000 persons, and the scenes of their nomadic life range from the White Sea to the Obi and Yenisei, with their wide-spread tundras, extending from the forest limits in latitude 67° to the Polar Sea. The European portion is divided by the Petchora. With their herds of reindeer they wander



SAMOYED SLEDGE.

over the dreary wastes, or hunt in the boundless forests farther south. Their chief intercourse with the Russians is at the annual fairs of Obdorsk and Pustosersk; and as usual, the poor barbarians have learned the worst vices of the Europeans. They are much given to drunkenness, surpassing their Russian teachers—no easy task. The supreme god of the unconverted Samoyed is Yilibeambaertye, who resides in the air, and the hem of whose garment is the rainbow. He is also called Num, perhaps borrowed in some way through intercourse with other races from the Latin *Numen*, a divinity, or *nomen*, a name, as it were "he of the unspeak-

able name." Certain it is that they regard him as far above the affairs of men, and their worship is mainly directed to the inferior gods represented by the idols above referred to. Small idols they carry about with them, and the larger ones are kept in the sanctuaries of the race. In every train there is a sledge devoted to conveying the idols of the whole tribe. Among the household gods, or *hake*, of a Samoyed, is one to watch over the health of his family, another over his marital relations, a third over his reindeer, and a fourth over his fishing nets and other implements of the chase for food on land or water. Whenever the services of any of these is required, he is taken from his repository, his mouth is smeared with blood, and a dish of fish or blood is set before him. When his aid is no longer required he is hustled away into his receptacle, without ceremony. In his relations with these he is his own priest; but with the invisible spirits which hover about in the air, and are hostile to man, he requires the services of a *tadibe* or sorceror. This worthy, when discharging the duties of his sacred office, wears peculiar robes, a red cloth veils his face and eyes, and a plate of polished metal shines upon his breast. He takes his drum or tambourine and walks around in a narrow circle, beating the instrument, at first slowly and gently, then with increasing energy, while he chants a mystic hymn. Soon the frenzy grows, his eye gleams with a strange fire, he foams at the mouth, he pounds the tambourine with increasing and spasmodic violence, and the melody becomes a raving shriek, or savage howl. He now sits down and receives the message of the spirit, and announces it to the interested party. The *tadibes* do not seem to be conscious impostors; they are in the main, self-deceived. Some, however, know how to practice the well-known feats of jugglery which have attracted so much attention nearer home. A smart *tadibe* will take his seat on a reindeer skin, or on a chair, with his hands and feet tied, and having the light lowered or removed, will proceed to summon spirit help to release him from his bonds. Unexpected noises announce the approach of the helping spirits—bears are heard to growl, snakes to hiss, and squirrels to whisk their tails. The spirits never seem able to do anything without these accompaniments—strange that they never utter any sounds but such as are easily within

reach of man's imitative powers; announce nothing that is beyond his power of conjecture, or do anything that a professional juggler cannot do as well without their aid. A wild look, haggard face, faded or bloodshot eyes, a shy manner, an uncertain gait, and shattered nerves—resulting from these periodic excitements—mark the *tadibes* among their fellows.

These barbarians honor the memory of their dead with sacrifices and ceremonies for three years after their decease, it being assumed that then at least the body has become entirely decomposed, and lost all past sensations. They place within or on the grave some of the most necessary implements used by the deceased. They have great respect for the sanctity of an oath, the most binding form being over the snout of a bear, and in the presence of a *balvan*, which they will make of snow or other convenient material, at a moment's notice. Their appearance is not prepossessing—short stature, low forehead, small, oblique, flat nose, prominent jaws, thick lips, jet-black, horse-like hair, scant beard, yellowish complexion, with little symmetry, are not the accepted constituents of "the glass of fashion, and the mould of form." The male Samoyed is content if his reindeer suit keep him dry and warm; and cares little for the cut of the garment, or its cleanliness. The younger females, however, evince considerable taste in dress. Their best usually consists of a long garment of reindeer skin, fitting closely at the waist, and hanging in graceful folds to the feet. The petticoat has two or three fringes of dogskin, differently colored, with strips of bright cloth between; and the boots are tastefully embroidered. But it is to the ornamentation of their hair that they devote the most marked attention. It is divided into two long braids which are interwoven with bright-colored ribbons, beads, buttons, and sundry metallic trinkets. These are artistically continued by straps, which are similarly ornamented and nearly reach the ground, giving the impression that the whole is a luxuriant growth of jet-black hair.

Their manner of life has developed a piercing eye, a sharp ear, a steady hand and a fleet foot, but taste and smell are either defective or obtuse. They are good-natured, phlegmatic, and inclined to melancholy;

grateful, hospitable, and kind; free from cruel or revengeful feelings; but are rather given to indolence and a sort of stoical indifference or apathy, which extends to even the final exit from this life. Like all oppressed and deceived people they are suspicious of their more crafty neighbors; and are opposed to all innovations, not unnaturally suspecting them of being disguised injuries. They have been crowded from their best pastures and within narrower limits from year to year; and while recognizing their inability to cope with the stronger, they have necessarily grown sullen and suspicious. Their language is of the agglutinative type, that is, the relations of words to each other in a sentence are expressed by suffixes or terminations, glued on, as it were, at the end, prepositions, prefixes and inflections being unknown, and the plural marked by a distinctive suffix. It is, however, so far as yet known, not very closely related to the other branches of the so-called Attaic family.

Nordenskiöld's expedition quit their anchorage off Chabarova on the 1st of August, and steamed through the sound, the Fraser towing the Express into the Kara Sea, which extends from Nova Zembla to Taimur Peninsula, receiving the waters of the Kara, Obi, Taz, and Yenisei through the gulfs bearing the same names. It was found that "no notable portion of the mass of fresh water which these great rivers pour into the Kara Sea, flows through Vaigats Sound into the Atlantic Ocean: and that during autumn this sea is quite available for navigation." On the 2d they met no ice; on the 3d only ice that was very open and rotten, presenting no obstacle, and in the evening arrived in sight of the large island of Beli Ostrov. The Lena had been dispatched ahead with three of the naturalists, under orders to pass through the sound which separates it from the peninsula of Yalmal. On the 6th, passing Sibiriakoff Island in the mouth of the Yenisei, they anchored in Port Dickson— $73^{\circ} 30'$ by 81° —on Dickson Island, where they were rejoined by the Lena on the 7th. The reader will recognize the names of patrons of the expedition in those assigned to those two islands in the estuary of the Yenisei. Port Dickson had been so named in Norden-skiöld's first voyage thither in 1875.

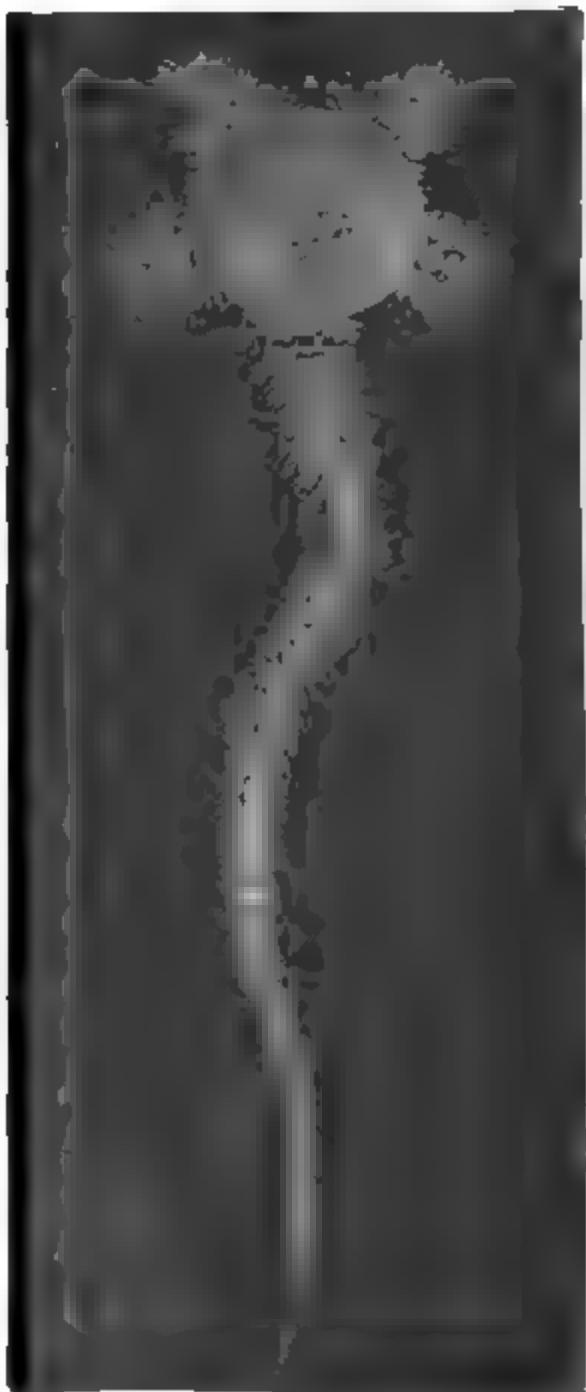
CHAPTER LXXVII.

THE VEGA CONTINUES HER VOYAGE TO THE NORTHEAST—CAPE PALANDER—KING OSCAR BAY—THE OLD PROBLEM SOLVED—THE NORTHERNMOST POINT OF ASIA—ANIMAL LIFE—THE VEGA AND LENA PART COMPANY—NEW ICE BEGINS TO FORM AROUND THE VEGA—TCHUKTCHIS—LIFE AMONG THE NATIVES—REACH CAPE ONMAN.

On the 9th of August the Fraser and Express left Port Dickson on their commercial errand higher up the Yenisei, and on the 10th the Vega and Lena, with which this work is more concerned, weighed anchor for the continuance of their exploring voyage to the northeast. On the morning of the 11th, while lying to in a fog, Nordenskiöld and three naturalists landed on one of the numerous small islands in the estuary of the Pasina, where they found fifteen species of flowering plants—they had found seventeen on White Island—six species of birds, but no mammalia, not even the usual polar bear. “By afternoon the air had again cleared somewhat, so that we could sail on. A piece of ice was seen here and there; and at night the ice increased for a little to an unpleasant extent. Now, however, it did not occur in such quantity as to prove an obstacle to navigation in clear weather, or in known waters. On the 12th we still sailed through considerable fields of scattered drift-ice, consisting partly of old ice of large dimensions, partly of very rotten ice of the current year. It formed, however, no serious obstacle to our advance, and nearer the shore we probably would have had quite open water, but of course it was not advisable to go too near land in the fog and unknown waters.” Later, it was found necessary to move the vessel to an ice-floe, and they were thus held through fog and ice until the 14th, when, upon a partial clearing-up of the atmosphere, they steamed forward toward Taimur Bay. All detentions and stoppages were of course

utilized by the busy naturalists of the expedition. Numerous small islands and groups had been discovered since leaving Port Dickson, and named, generally after some of the scientists and officers. The northern point of the West Taimur Peninsula was named Cape Palander. But they had not gone far under steam on the 14th, when the fog again compelled them to put into port. Fortunately an excellent harbor was found in what the commander named Actinia Bay, from the large number of actiniæ, or sea-anemones, which the dredge brought up there. It is an inlet of Taimur Sound, running into the southwest coast of the island of the same name, at the entrance into Taimur Bay from the west. Here again they were detained until the 18th, using the time in explorations and investigations. They found the sound too shallow to be passed through by large vessels. Animal life was scant; some few reindeer were seen, a mountain fox was killed, and a lemming caught; and ten or twelve species of birds were seen, among which were six waders. Of these and some young ptarmigans, quite a number were shot. Some thirty-four species of flowering plants were noticed, besides the usual number of mosses and lichens. A walrus had been seen during the voyage from Port Dickson, and now a number of seals were found floating on the ice in Taimur Sound.

Again weighing anchor they skirted the west coast of Taimur Island, threading their way through many small islands still partially

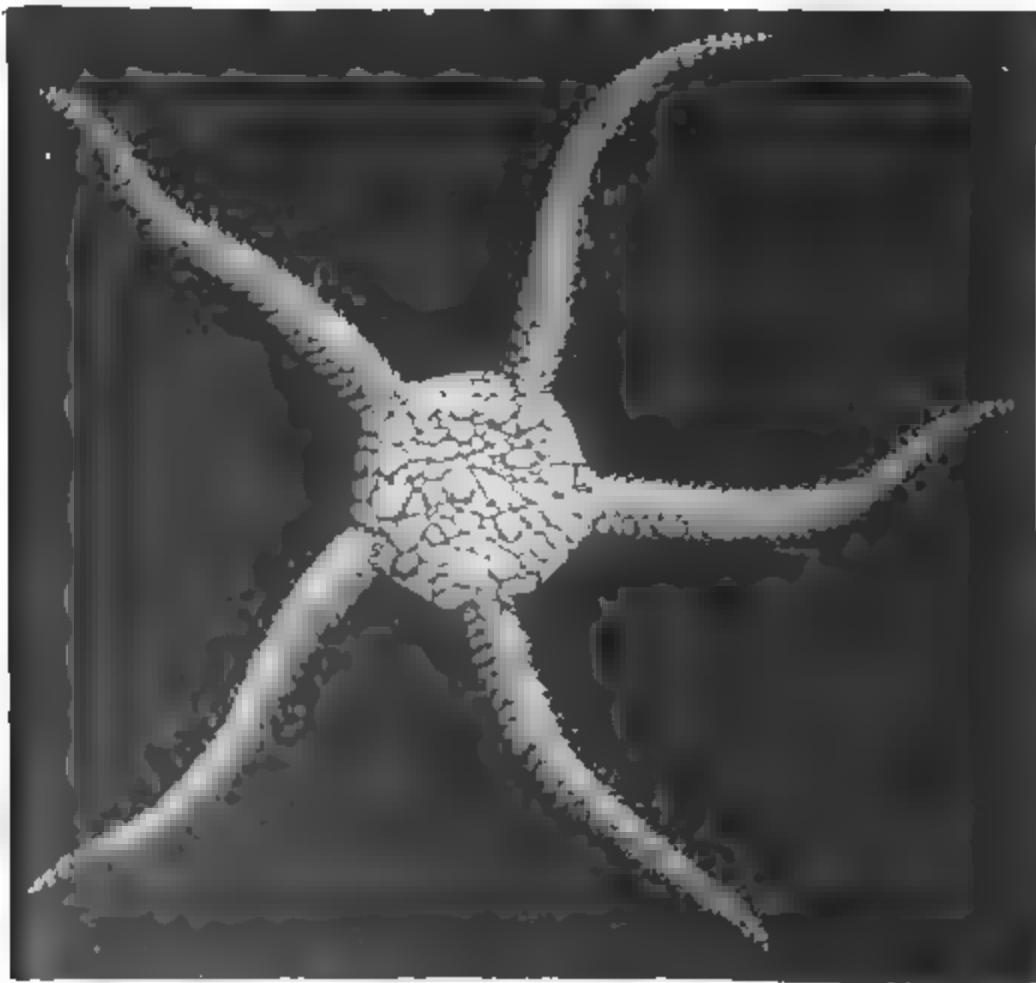


ARCTIC HAIR STAR.

enveloped in fog, requiring the almost constant use of their steam-whistles to keep from separating, but encountering no obstacle from ice, such as was met being mostly rotten river and bay ice. On the 19th the fog still continuing, they steamed by a large, high, unbroken field of ice, extending from a small bay on the west side of the peninsula, which caused them no little apprehension that they might find it impossible to double the great north cape of Asia, which was the main purpose of the expedition. A little farther on they had the good fortune to find, just west of the low-jutting promontory—or rather in the fork of it—an open bay which they named King Oscar, and in which both steamers came safely to anchor in the evening. They had nowhere met such old drift-ice as is encountered north of Spitzbergen. "We had now reached a goal," says Nordenskiöld, "which for centuries had been the object of unsuccessful struggles. For the first time a vessel lay at anchor off the northernmost cape of the Old World. No wonder then that the occurrence was celebrated by a display of flags, and the firing of salutes, and when we returned from our excursion on land, by festivities on board, by wine and toasts. The north point of Asia forms a low promontory, which a bay divides into two, the eastern arm projecting a little farther to the north than the western. A ridge of hills with gently sloping sides runs into the land from the eastern point, and appears within sight of the western to reach a height of 300 metres (984 feet). Like the plains lying below, the summits of this range were nearly free of snow. Only on the sides of the hills or of the deep furrows excavated by the streams of melted snow, and in dales of the plains, were large white snow-fields to be seen. A low ice-foot still remained at most places along the shore; but no glacier rolled its bluish-white ice-masses down the mountain sides; and no inland lakes, no perpendicular cliffs, no high mountain summits, gave any natural beauty to the landscape, which was the most monotonous and the most desolate I have seen anywhere in the High North."

Both the cape and the immediate tongue of land back of it are now distinctively known as Cape Chelyuskin and Chelyuskin Peninsula, both in the honor of the Russian explorer of that name, previously men-

tioned. The great Taimur Peninsula, of which this tongue and cape form the extreme northern projection, is now further divided geographically into a West and East Taimur Peninsula by the Taimur Lake and River; and it is to the eastern half that Chelyuskin Peninsula belongs. Here, facing the north pole and snuffing something he had never snuffed before, was seen a polar bear; but while Lieut. Brusewitz was preparing to pursue him, the salute to Cape Chelyuskin had scared him off, and he survived to lord it over the animal creation after the departure of his



STAR FISH OF NORTHERN WATERS.

enemies. Twenty-three species of inconsiderable flowering-plants were found; some insects, chiefly the poduræ, or spring-tail, a few flies, and a beetle. Of birds, a large number of sand-pipers and barnacle-geese, a loon, some kittiwakes and ivory-gulls were seen; and also some remains of owls. Of mammalia, the solitary bear already mentioned, was the only live representative of the land division; but traces of the reindeer and lemming were found on the plains; while marine mammals were represented by a walrus, several seals, and two shoals of white whales.

The position of Cape Chelyuskin was determined by observations on land, but with an artificial horizon, to be latitude $77^{\circ} 36' 48''$ and $103^{\circ} 17' 12''$.

Quitting King Oscar Bay on the 21st, the two steamers proceeded east-southeast until they cleared the East Taimur Peninsula, reaching 77° by 116° on the 22d, after much conflict with ice-floes. Abandoning the purpose of making directly southeast for the islands of New Siberia, because of the ice-pack, they now steamed successively to every point of the compass in the effort to get into open water. On the 23d they were still badly entangled, and made but little progress, having been compelled to anchor to the ice twice in two days; but as usual, these forced detentions were made available for scientific investigation. "The yield of the trawl net was extraordinarily abundant; large asterias, crinoids, sponges, holothuria, a gigantic sea-spider (pycnogonid), masses of worins, crustacea, etc. It was the most abundant yield that the trawl net at any one time brought up during the whole of our voyage round the coast of Asia, and this from the sea off the northern extremity of that continent." Finally, at 8:45 in the evening they sighted the peninsula to the west; and were now able to push rapidly to the south, in an open smooth sea, seven to ten kilometres—about four to six miles—from land, under a northwesterly breeze.

On the 24th, proceeding still southward at about the same distance from land, they observed a chain of mountains a little way inland, about 2,000 to 3,000 feet in height, and like the plains along the coast, entirely free from snow. At noon, with no ice in sight, they reached Prevbraschenie Island at the entrance to Chantanga Bay; and landing, killed two bears, and made some scientific observations. Weighing anchor at 10:30, and passing the mouth of Nordvik Bay in the night, they reached the north coast of the mainland on the 25th, and proceeded due east from longitude 114° ; along which—but in the main a little to the west of it—they had sailed since getting clear of the ice to the north. On the 26th at noon they were in longitude 122° , and at night encountered shoals off the mouth of the Olonek. On the ensuing night the Vega and Lena parted company in the open sea in about longitude $128^{\circ} 30'$,

off Tumat Island, about 40' north of the Lena Delta. Some rockets were fired off, and Capt. Johannessen received his final orders, passport, and copies of Russian official letters, instructing such representatives of that nation as he might fall in with, to render whatever assistance might be needed. During the whole voyage the ships had encountered much fog, but no ice of any consequence until after passing Cape Chelyuskin, and then only when they struck out across the Polar Sea toward New Siberia. While they followed the coast they found open water, always at a safe distance from the land on the one hand, and the ice-pack on the other. It was therefore demonstrated that, at least in seasons as favorable as 1878, the whole voyage may be made without meeting any serious obstruction from ice. The Lena reached Iakoutsk on the 21st of September amid great rejoicings, being the first ocean-steamer that had ever reached that far inland city, about 800 miles from the sea.

After parting with the Lena, as stated, the Vega kept on to the east, reaching 132° at noon of the 28th, and sighting Stolbovoi Island in the afternoon. The 29th was spent in working around through rotten ice, causing some detention, and compelling them to proceed to the north of Stolbovoi, and then southeast toward Liackov or Lachow Island, reaching 140° at noon of the 30th. Finding ice heaped up in rather forbidding quantity on the west coast of the island, Nordenskiöld relinquished his purpose of landing; and the Vega kept on her way to the southeast, passing the famous Sviatoi Noss, the northernmost point of the mainland opposite the New Siberian Islands, in the night. They here noticed new ice beginning to form, though the temperature by their instruments was not quite as low as the freezing point. On the 1st of September they were at 150° , about one degree north of the mouth of the Indigirka, and on the 2d the temperature fell to one degree below zero. On the 3d snow began to fall, and when they arrived off Bear Islands, north of the mouth of Kolyma, both vessel and land were lightly covered with it. The channel west and south of the islands, through which they passed, was almost free of ice, but a little further out ice was abundant, and on the 4th, east of the islands, heavy masses were found to have drifted south, compelling the Vega to bear down nearer the coast toward

the Greater Baranow Rock. Indeed, ever since doubling Sviatoi Noss, the ice seen was more like that to be met off Spitzbergen, than any they had hitherto encountered on this voyage; but no icebergs or large glacier blocks had been met or sighted. On the 5th they were off the mouth of the Baranicha, so often mentioned in the account of Wrangell's sledge-journeys, boldly steaming through some of the scenes of his greatest perils, and making about fifty miles a day. Passing the entrance to Tchaun Bay in the night, they reached Cape Schelagskoi at 4 o'clock on the afternoon of the 6th.

The monotony of the voyage was at length about to be relieved. They received their first visit from natives. Two boats, not unlike the oomiaks of the Esquimaux, set out from the land, fully laden with men, women and children, clamoring to be taken aboard the Vega. These of course were the reader's old acquaintances, the Tchuktchi of these regions. "The type of face," says Nordenskiöld, "did not strike one as so unpleasant as that of the Samoyeds or Esquimaux. Some of the young girls were not even absolutely ugly. In comparison with the Samoyeds they were even rather cleanly, and had a beautiful, almost reddish-white complexion." They were dismissed with gifts of tobacco and pipes, besides trinkets and clothing, and went off rejoicing. On the 8th, being beset by fog and ice, the Vega anchored, and her company went ashore, invited by the natives, who continued to make a favorable impression on their visitors. "Children, healthy and thriving, tenderly cared for by the inhabitants, were found in large numbers. The younger were treated with marked friendliness, and the older ones were never heard to utter an angry word. The women were treated as the equals of the men, and the wife was always consulted by the husband when a more important bargain than usual was to be made. The dwellings consisted of roomy skin tents, which inclose a sleeping chamber, hexagonal in form, hung with warm, well-prepared reindeer skins, and lighted and warmed by one or more train oil lamps. It is here that the family sleep during summer, and here most of them live, day and night, during winter. In summer—less frequently in winter—a fire is lighted, besides, in the outer tent with wood, for which purpose a hole is opened in the top

of the raised tent-roof. But to be compelled to use wood for heating the inner tent the Tchuktchis consider the extreme of scarcity of fuel."

Though there was no village in the immediate vicinity, there was no lack of visitors, and the report of their arrival seemed to have spread very rapidly. The Swedes had but few articles of barter, and soon got rid of their stock of tobacco and Dutch pipes. Getting ready to sail on the 10th, they could make but little headway, and lay to in the ice during the night; but by keeping quite close to the shore they were able to creep along, again lying to on the night of the 11th. This was at Irkaipie, Cook's Cape North, longitude 180° , whence Wrangell tried in vain to sight "the alleged inhabited northern country." On the 12th, beyond Cape North, the Vega at last found her way blocked by the ice-pack, and turning back, found temporary refuge near the cape, where they were detained by the untoward condition of the ice until the 18th. Besides the usual scientific investigations, some remains of the Oukilon or Coast race, here occupied the attention of the scientists. "A large number of house-sites, and implements of stone, bone and slate, were found; also middens, or refuse heaps, containing bones of several species of whales, and of the seal, walrus, reindeer, bear, dog, fox, and various kinds of birds."

Growing impatient of detention, they pushed forward on the 18th, and after struggling almost constantly with ice, reached Cape Onman on the 26th. At times boring through the ice with the strong bows of the Vega; at others moored to a floe, or grounded mass; sometimes with only a foot of water under the keel; at others aground on shore-ice, awaiting high tide, while axes, picks and poles are brought into active service, they worked their tedious way, making not quite twenty miles of actual advance in nine days, four of which, however, were lost, in two equal periods of forced inaction. On the 27th, steering south a little way into Kolyutchin Bay, to avoid the ice surrounding the island of the same name at its entrance, and then east to resume their direct course, they anchored in the afternoon to a floe near the eastern shore. The next day they doubled the headland, and crept forward, hoping to make their way through Behring's Straits to some of the Pacific islands.

CHAPTER LXXVIII.

THE VEGA IN WINTER QUARTERS—THE USUAL PREPARATIONS—
THE AVERAGE COLD—THE HOME OF HONESTY—NORDENSKIÖLD'S
EXCURSION TO PIDLIN—CELEBRATION OF CHRISTMAS—VISITORS
AT THE VEGA—AURORAL DISPLAYS—COMMENTS ON THE ANIMAL
LIFE OF THE REGION—A TCHUKTCHI GRAVEYARD—THE AP-
PROACH OF RELEASE.

On the 29th, finding no lane, lead or outlet through the pack, the Vega was moored to a mass of ground ice, 130 feet long, 80 wide and 20 high, which afforded a fair shelter, but no proper haven. This, however, proved to be the winter quarters, except that later on ship and shelter were pushed by the outer ice to within seven-eighths of a mile of the coast. Soon the ice-belt which had obstructed their advance grew from six or seven to eighteen or twenty miles wide, and there was no longer any hope of getting away until the ensuing summer. Their exact position was ascertained to be in latitude $67^{\circ} 4' 49''$ north, and longitude $173^{\circ} 23' 2''$ west— 180° east, half the circumference from Greenwich, had been passed at Cape North. "It was an unexpected disappointment," says Nordenskiöld, "which it was the more difficult to bear with equanimity, as it was evident that we would have avoided it if we had come some hours earlier to the eastern side of Kolyutchin Bay. There were numerous occasions during the preceding part of our voyage on which these hours might have been saved. The Vega did not require to stay so long at Port Dickson; we might have saved a day at Taimur Island; have dredged somewhat less west of the New Siberian Islands, and so on; and above all, our long stay at Irkaipie, waiting for an improvement in the state of the ice, was fatal, because at least three days were lost there without any change for the better taking place."

It scarcely needs be said that, as soon as it was fully understood that

this was indeed their utmost limit for the year 1878, they set themselves to work diligently to make the best of it. The usual preparations were made for the health and comfort of the men; an observatory was erected, and various scientific experiments were set on foot. To guard against the not impossible contingency of grave disaster to the ship during the anticipated prevalence of severe storms later on, a depot of provisions was established ashore, containing necessary stores and provisions for sixty men for 100 days. "The stores," says Nordenskiöld, "were laid upon the beach without the protection of lock or bolt, covered only with sails and oars, and no watch was kept at the place. Notwithstanding this, and the want of food which occasionally prevailed among the natives, it remained untouched by the Tchuktchis who lived in the neighborhood, and by those who daily drove past the place from distant regions. All, however, knew very well the contents of the sail-covered heap; and they undoubtedly supposed that there were to be found there treasures of immense value, and provisions enough for the whole population of the Tchuktchi peninsula for a whole year."

The average greatest cold for the first five months of detention—October to February—was 35° below zero; the lowest point reached being 45.7° , on the 25th of January; and for the remaining five months 24° , the highest being 1° below zero, on the 2d of July. The state of health on board during the course of the winter was exceedingly good, there being but few cases of serious indisposition, mostly stomach colds and slight lung inflammations, all of which yielded readily to medical treatment, and not a single case of scurvy. There were about 300 natives, in the vicinity of the ship, including those on Kolyutchin Island, all, except the islanders, within a distance of five miles. "Dog team after dog-team stood all day in rows, or more correctly, lay snowed up, before the ice-built flight of steps to the deck of the Vega, patiently waiting for the return of the visitors, or for the pemmican I now and then from pity ordered to be given to the hungered animals. We soon had visits from even distant settlements, and the Vega finally became a resting-place at which every passer-by stopped with his dog-team for some hours in order to satisfy his curiosity, or to obtain in exchange for good

words, or some more acceptable wares, a little warm food, a bit of tobacco, and sometimes, when the weather was very stormy, a little drop of spirits. We had not, however, to lament the loss of the merest trifle. Honesty was as much at home here as in the huts of the reindeer Lapps.

"On the 5th of October the openings between the drift-ice fields next the vessel were covered with splendid skating ice, of which we availed ourselves by celebrating a gay and joyous skating festival." On the 6th they received a visit from Vassili Menka, a chief or elder of the reindeer Tchuktchis; and on the 8th Nordquist and Hovgaard started with him from his encampment, not far from the ship, for the interior, to buy reindeer, and explore the country. The sledges were drawn by ten, nine, and five dogs, in the ratio of the weight of each, and returned in the evening of the 11th, having gone beyond Lake Utchunutch, and bought two slaughtered reindeer at about \$1.25 each. Through Menka, four months later, though the agreement was made at this time, Nordenskiöld sent letters to the Anadyrsk, where he arrived on the 7th of March, 1879. Conveyed thence to Iakoutsk, which took until the 10th of May, the first news from the winter quarters of the expedition was received in Sweden, by telegraph, on the 16th of May—"just at a time when concern for the fate of the Vega was beginning to be very great, and the question of relief expeditions was seriously entertained."

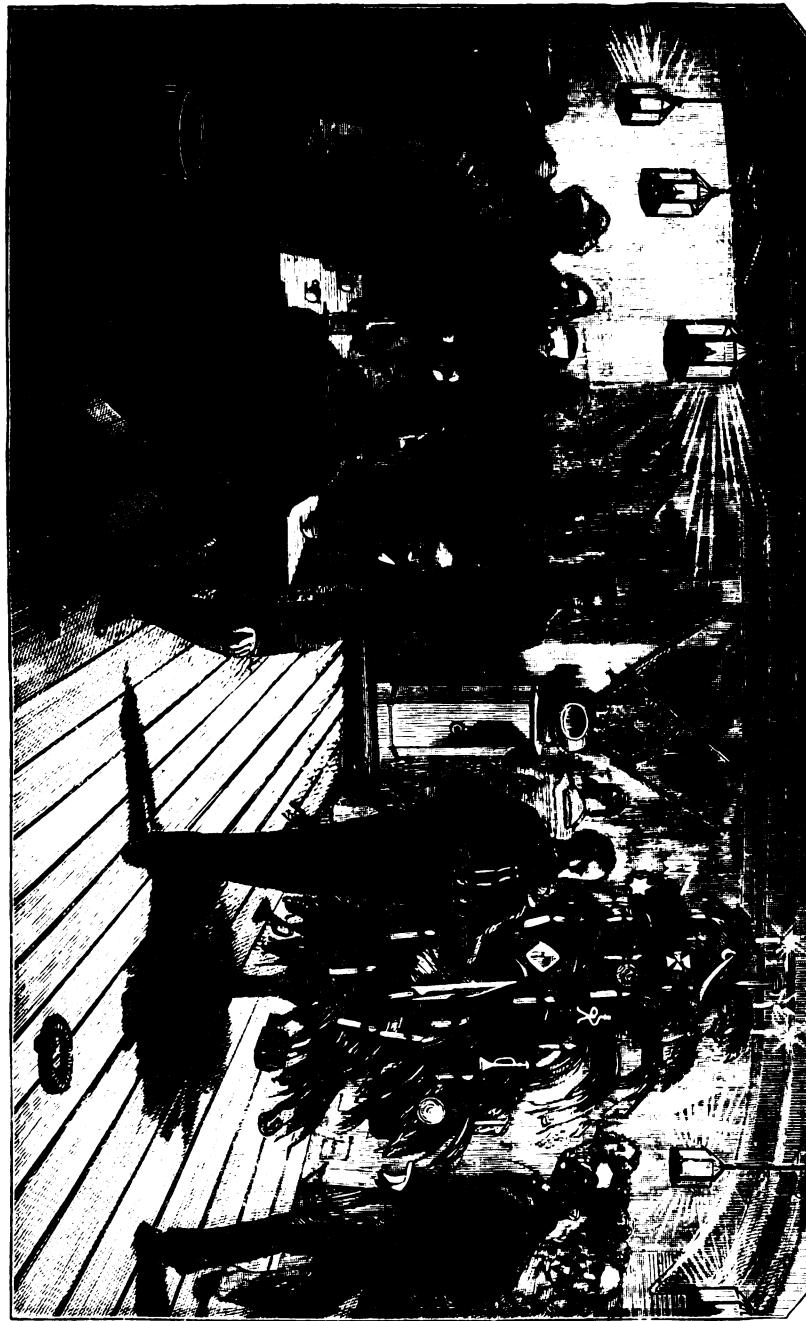
Matters being in good shape at the ship, Nordenskiöld made an excursion to the native settlement of Pidlin, on the eastern shore of Kolyutchin Bay, distant about a dozen miles, to learn something of the domestic habits and peculiarities of the Tchuktchis. He enjoyed their hospitality for a night, which seemed to be as much as he could stand at one time, and returned the next day, having noted a few of their superstitions, as well as the great heat and stench of their tents. On the other hand, "All sensible people among them had evidently come to the conclusion that it was profitless trouble to seek a seasonable explanation of all the follies which the strange foreigners, richly provided with many earthly gifts, but by no means with practical sense, perpetrated." Visits to and from the natives, hunting and scientific excursions, the routine of

duties aboard ship, filled the days and weeks. "One day was very like another. When the storm howled, the snow drifted, and the cold became too severe, we kept more below deck; when the weather was finer, we lived more in the open air, often paying visits to the observatory in the ice-house, and among the Tchuktchis living in the neighborhood, or wandering about, to come, if possible, upon some game."

On the 15th of December there was a violent movement of the ice, but without injury to the ship; and on the 18th a lane was seen to the north, but it was soon closed by drift-ice. A week later they celebrated Christmas in a joyous and festive manner. "A large number of small wax-lights, which we had brought with us for the special purpose, were fixed in the Christmas tree, together with about two hundred Christmas boxes purchased, or presented to us, before our departure. At 6 p. m. all the officers and crew assembled in the 'ween-decks, which had been richly and tastefully ornamented with flags, and the drawing of lots began," followed by supper, songs, toasts, and general good-fellowship. A week later, the new year, 1879, "was shot in with sharp explosive-shell firing from the rifled cannon of the Vega, and a number of rockets thrown up from the deck." With it came some hope of release. The north winds had recently given way to the warm south winds, creating considerable clearings out to sea; but the Vega's ice-fetters remained undisturbed. Again, on the 6th of February, the thermometer rose to above freezing point, and open water of great extent was visible to the north; the Tchuktchis killed a polar bear and seventy-eight seals, and reveled in temporary luxury, or abundance of food, lightening the tax on the ship's supplies, and putting a stop to the begging importunity of the poor natives; but there was still no chance of release for the ship.

On the 17th of February Lieut. Brusewitz made a sledge excursion to Naitskai, along shore to the east, about ten miles from winter quarters; and on his return reported hospitable entertainment, and abundance of seals in the tents of the natives. He saw eight hares, and a fox, but no ptarmigans. On the 20th three large Tchukchi sledges, drawn by sixteen to twenty dogs, and laden with goods for Nishni Kolymsk, arrived at the Vega. By these letters were sent, which it was afterward ascer-

CHRISTMAS EVE ON BOARD THE V.R.A.



tained reached the Kolyma on the 4th of April, and Sweden on the 2d of August. Early in March a number of laden dog-sledges passed to the east on their way from Cape Irkaipie to Behring's Straits for purposes of trade with the natives of the islands of the North Pacific, and Alaska. These were followed, after the middle of the month, by larger reindeer-sledges laden with reindeer skins and Russian goods, from the fair of Ostrovnoi, for the same market.

On the 17th of March Lieut. Palander and Dr. Kjellman made an excursion eleven miles to the south, to buy reindeer-flesh; they found the reindeer-camp and the owner, by whom they were hospitably entertained, but who declined to sell on any terms, as the animals were, he said, too lean to be slaughtered. His treatment of his stock won the admiration of the visitors: "It was not the grim, hard savage showing in a coarse and barbarous way his superiority over the animals, but the good master treating his inferiors kindly, and having a friendly word and gentle touch for each of them. Here good relations prevailed between man and the animals. The owner went forward and saluted every reindeer; they were allowed to stroke his hands with their noses. He, on his part, took every reindeer by the horn, and examined it in the most careful way." A trip, 20th to 25th, was made by Brusewitz, Nordquist, and three others of the ship's company, with a Tchuktchi guide, to Lake Nutschoityin, to fish and explore.

On the 19th of April Lieut. Bove and a companion made a three days' excursion along shore to the east, reaching the village of Tiapka, some fifteen miles distant; and two months later, he and Dr. Almquist made a four days' excursion to the interior, when they penetrated about thirty miles southwest to near the eastern shore of Kolyutchin Bay. It will be noticed that all these excursions from the Vega were of short duration, which was due to the commander's natural unwillingness to permit long absences from the ship, because of her exposed condition. A few days' violent storm from the south or southeast might at any time place her in jeopardy. In May they had only a few hours of mild weather; and even on the 3d of June the thermometer stood 14° below zero; but on the 13th it rose to 8° below, and during the day, a southerly

breeze sprang up which put an end to the cold weather. Thence on, the mercury only exceptionally fell below the freezing point.

Throughout the winter and spring there were frequent auroral displays, which were observed with great minuteness of detail, and have been published separately. Their value and interest did not, as in many other Arctic voyages, arise from any special brilliancy of coloring or exceptional phenomena, but from their continuous and almost uniform appearance, which afforded excellent opportunities for accurate measurement and scientific investigation of the common auroral arc. Most Polar expeditions have wintered too far north for this purpose, and have usually witnessed only the more gorgeous occasional ray and drapery auroras, or exceptional aurora storms, the common arc lying almost or quite under their horizon.

It was noticed that the migratory birds arrived in fewer numbers but in much greater variety than at Nova Zembla, Spitzbergen, or Greenland. The most common of the mammalia was the hare in little flocks of five or six; three species of foxes were also seen in considerable numbers; and of the lemming the same number of varieties. The wolf and wild reindeer had a few representatives; and traces of the hibernating land-bear and marmot were also seen. The otter, beaver and weasel, were described by the Tchuktchis, and two skins of the last-named were obtained from them, but no living representative of any of the three was encountered. The Polar bear, in a few instances, and the bristled seal, in great numbers, were seen; and of the latter many were killed by the Tchuktchis, constituting their staple food. Nearly one hundred distinct species of plants were noted, of which more than half are indigenous to the Scandinavian Peninsula; and the earliest date of flowering was the 23d of June. A few flies had been noticed on a particularly pleasant day four weeks before this time, but it was not until the end of June that insects appeared in any considerable numbers.

On the 19th of June the Vega was visited by a Christianized Tchuktchi, named Noah Elisei, who had been sent forward by Russian officials at Nishni Kolymsk in the hope of being of service to the expedition. The chief, if not only, advantage derived was in the barter of

three reindeer for tea, sugar, and tobacco, besides numerous gratuities to Elisei, his two wives, and his large family of children.

Among the last excursions was one to a Tchuktchi graveyard by Dr. Stuxberg, of which he gives the following account: "The Tchuktchi graves on the heights south of Pitlekai and Inretlen (perhaps two miles from the Vega), which were examined by me on the 4th and 7th of July, 1879, were nearly fifty in number. Every grave consisted of an oval formed of large stones laid flat. At one end there was generally a large stone raised on its edge, and from the opposite end there went out one or two pieces of wood lying on the ground. The area within the stone circle was sometimes overlaid with small stones, sometimes free, and overgrown with grass. At all the graves, at a distance of four to seven paces from the stone standing on its edge, in the longitudinal axis of the grave, or a little to the side of it, there was another small circle of stones, inclosing a heap of reindeer horns, commonly containing also broken seals' skulls and other fragments of bones. On only one grave were found pieces of human bones. The graves were evidently very old, for the bits of wood at the ends were generally much decayed, and almost wholly covered with earth; and the stones were completely overgrown with lichens on the upper side. I estimate the age of these graves at about two hundred years."

At length the moment of release approached. The temperature had remained below freezing point to the middle of June. On the 14th, however, there was a sudden change to milder weather. A heavy thaw set in, and the coast land was so covered with mud and slush that all excursions had to be discontinued. But the ice which bound the ship was still so strong that the explorers did not expect to be able to leave before August. Throughout their stay there had been open water seaward, but usually at a great distance from the ship. "On the 16th of July," says Nordenskiöld, "a heavily laden double sledge could still be driven from the vessel to the shore"; and the next day the year's ice around them began to break up, but the ground-ice was still undisturbed, and it was judged that several days would elapse before they could get clear. So the commander determined to take the steam launch to sea, and visit

some whalers reported by the natives to be off Serdze Kamen at 1:30 on the 18th, when almost ready to set out, there was a movement of the ice which held the Vega. An hour later, who was prepared for every emergency, had steam up; an hour, the ship was free. At 3:30 she steamed away, first west to get clear of the floe, and then in the right direction through Serdze Kamen and Behring's Strait, encountering no further difficulties from the ice thenceforth to the close of the voyage. The winter quarters had lasted 293 days.



CHAPTER LXXIX

FREED FROM HER MOORINGS — DIOMEDE ISLAND — ST. LAWRENCE ISLAND — NORDENSKIÖLD REACHES A TELEGRAPH STATION — AT YOKOHAMA — A SERIES OF FESTIVALS — AT HONG KONG — CEYLON — CHRISTMAS AT SEA — THE SUEZ CANAL — A RECEPTION AT BOULOGNE — THE GRAND CELEBRATION — COMMENTS ON THE EXPEDITION.

No sooner had the vessel swung loose from her moorings and got outside the few masses of ice that had formed her winter haven than she found an ice-free lead to the east, and encountered no further obstacles on her way to the Pacific. In ten hours they passed Serdze Kamen, in 172° west, and steering thence southeast, they arrived off Cape East in Behring's Strait on the morning of the 20th, and at 11 o'clock, being about midway between the Arctic and Pacific Oceans, "The Vega greeted the Old and New Worlds by a display of flags, and the firing of a Swedish salute." Thus finally was reached the goal toward which so many nations had struggled, all along from the time when Sir Hugh Willoughby with the firing of salutes from cannon, and with hurrahs from the festive-clad seamen, in the presence of an innumerable crowd of jubilant men, certain of success, ushered in the long series of Northeast Voyages, 326 years before.

The prevalence of fog rendered unadvisable a landing, otherwise much desired, "at Diomede Island, the famous market-place of the polar tribes, situated in the narrowest part of the Straits, nearly half-way between Asia and America; and probably before the time of Columbus, a station for traffic between the "Old and New Worlds." They first cast anchor in St. Lawrence Bay, where various expeditions and investigations among the tribes on the east coast of the Tchuktchi Peninsula were zealously taken up, but only for a single day, as the commander was anxious

to reach a telegraph station to communicate the safety of the expedition to the king and people of Sweden, and the world at large. Steaming across to the American side they anchored in Port Clarence, where they were soon called upon by the Esquimaux for interchange of civilities, gifts, and barter. Here they remained until the 26th, when the Vega recrossed to the Tchuktchi peninsula, farther to the south than before, and anchored in Konyam Bay on the 28th. The mountains were high and split up into pointed summits with deep valleys still partly filled with snow; but no glaciers were seen. The inner bay was still covered with an unbroken sheet of ice, which, suddenly breaking up on the 30th, they beat a rather precipitate retreat, just in time to escape the last chance of conflict with the great enemy of Arctic expeditions.

Steaming away to St. Lawrence Island the Vega anchored in an open bay on the northwest coast on the 31st. Notwithstanding its very considerable size, eighty by thirty miles, the island has no good harbor; and the Vega left her exposed situation on the 2d of August. The next anchorage was made on the 14th in an almost equally exposed bay on the west of Behring's Island. In the dreary, treeless land where Behring and companions met nothing but desolation, sand hills, and ravenous foxes, Nordenskiöld and party found a thriving colony of American and Russian traders, with dwelling-houses, official buildings, storehouses, a schoolhouse, and church. Behring, Copper, and Toporkoff Islands, besides several islets and rocks, constitute the group known as Commander's Islands. "The part of Behring Island which we saw," says Nordenskiöld, "forms a high plain resting on volcanic rocks, which, however, is interrupted at many places by deep kettle valleys, the bottoms of which are generally occupied by lakes which communicate with the sea by large or small rivers. The banks of the lakes and the slopes of the hills are covered with a luxuriant vegetation, rich in long grass and beautiful flowers; and might without difficulty feed large herds of cattle, perhaps as numerous as the herds of sea-cows that formerly pastured on its shores."

Finding here a steamer of the Alaska Company bound for Petropavlovsky, Nordenskiöld was somewhat relieved of his anxiety to reach a

telegraph station, whence to dispatch news of the safety of the expedition. He had of course no means of knowing with certainty that his letters through the Tchuktchis had been safely forwarded; and he wished to relieve the suspense of king and people, and of the world at large, and save the expense of unnecessary relief expeditions. After a short but pleasant sojourn at the civilized colony, they left their moorings on the 19th, and on the 25th struck the Gulf Stream of the Pacific. On the 31st the mainmast of the Vega was struck by lightning, and the vane with some inches of the pole was thrown into the sea, while all on board received a violent shaking, but suffered no serious inconuenience. On the 2d of September, at 9:30 in the evening, the Vega anchored in the harbor of Yokohama, Japan; and Nordenskiöld at length had access to a telegraph station, and also a little experience of official obstruction in getting his messages off. Here he learned that a relief steamer, called by his name, had been sent forward by his friend Sibiriakoff, and had been stranded on the coast of Yesso, fortunately without loss of life, and with a fair prospect of being got off safely.

With Yokahama began the series of festivities and celebrations in honor of Nordenskiöld and his companions which soon encompassed the world, either actually or by sympathy of feeling. One unsolved problem—by many deemed insolvable—had not only been worked out, but the task had been achieved without loss of life, and with little more actual inconvenience, except from cold and the accidental detention in the ice, than men often experience on an inglorious fishing excursion. Civilized man everywhere rejoiced. "The great things left undone in the world" had been diminished by one, and another hero, representative of what can be done by man, was enthroned amid the plaudits of an admiring world. The first formal ovation was by a grand dinner at the Grand Hotel on the 10th of September, followed the ensuing day by a breakfast with the Japanese ministers. On the 13th, the German Club, and on the 15th the Tokio Geographical Society, were the hosts, while on the 17th the members of the expedition were formally presented to the Mikado at his palace in Tokio. With fetes, excursions, balls, and sight-seenings, their stay at Yokahama was rendered very enjoyable, but holi-

days must come to a close—indeed, they derive their chief zest from the consciousness of hard work before and after—and the Vega weighed anchor on the 11th of October, but it was not until the 27th that they finally took leave of Japan at Nagasaki. The Vega had meanwhile been overhauled, and copper-bottomed, to protect her hull from the boring mussels of the tropical seas, besides receiving some light general repairs, and some changes in interior outfit.

On the 2d of November our voyagers arrived at Hong Kong, and received of course an ovation from a settlement which represents the nation that has contributed most to Arctic exploration ever since the time of Cabot. They remained five days, and were not only well entertained by officials, but were much interested in the glimpses of Chinese life they were able to catch, especially in the neighboring city of Canton. Leaving Hong Kong on the 9th, and proceeding south through the China Sea, they anchored in the harbor of Labuan, off the northwest coast of Borneo on the 17th. On the 21st they sailed for Singapore, at the southern extremity of the Malay Peninsula, where they arrived on the 28th. Here, as elsewhere, Nordenskiöld and the scientists availed themselves of every opportunity to study the manners and customs of the people, ethnological characteristics, and whatever strange or peculiar they were able to detect in the social or political life of the races they encountered, besides the direct scientific investigations they had prosecuted from the beginning. Singapore is situated exactly half way in the circumnavigation of Europe and Asia from Sweden. A Babel-like confusion of speech prevails in the town, owing to the great number of nationalities represented—Chinese, Malays, Klings, Bengalese, Parscés, Singhalese, negroes, Arabs, besides Americans and Europeans.

Entering on the second but well-known half of the voyage on the 4th of December, 1879, they arrived at Point de Galle, on the southwest coast of Ceylon, on the 15th, “having had during the passage from Singapore a pretty steady and favorable monsoon. While sailing through the Straits of Malacca, a strong ball-lightning was often seen a little after sunset. The electrical discharges appeared to go on principally from the mountain heights on both sides of the straits. In the sea-

port towns the Singhalese are insufferable by their begging, their loquacity, and the unpleasant custom they have of asking up to ten times as much while making a bargain as they are pleased to accept in the end. In the interior of the country the state of things in this respect is much better. "During our stay in Japan and our voyage thence to Ceylon, I had endeavored," says Nordenskiöld, "at least in some degree, to preserve the character of the voyage of the *Vega* as a scientific expedition, an attempt which, considering the short time the *Vega* remained at each place, could not yield any very important results, and which besides was rendered difficult, though in a way that was agreeable and flattering to us, by I may almost say the tempestuous hospitality with which the *Vega* men were everywhere received during their visits to the ports of Japan and East Asia."

Leaving Galle on the 22d of December, they celebrated Christmas at sea in a modest but commemorative way, being tired of festive entertainments and luxurious banqueting. A New Year's call was made on the officers by the men of the forecastle in the character of Tchuktchis, offering the compliments of the season, and complaining bitterly of the unendurable heat, while they lavished unstinted praise on the beautiful lands of the heaven-favored Tchuktchis of the Polar Sea, where one could wear nice fur clothes all the year round. They reached Aden, at the entrance of the Red Sea, on the 7th of January, 1880. "No place in the high North," says Nordenskiöld, "not the granite cliffs of the Seven Islands, or the pebble rocks of Low Island on Spitzbergen; not the mountain sides on the east coast of Nova Zembla, or the figure-marked ground at Cape Chelyuskin, is so bare of vegetation as the environs of Aden, and the parts of the east coast of the Red Sea which we saw. Nor can there be any comparison in respect of the abundance of animal life between the equatorial countries and the polar regions we have named, being much richer in the latter." Setting out on the 9th, they traversed the Red Sea, about 1400 miles in length, and being delayed by adverse winds, did not reach Suez till the 27th of January. Here were more receptions, excursions to Cairo and the Pyramids, banquets from geographical and scientific societies, a ball from the Swedish consul,

and a trip to the Mokattam Mountains, for specimens of the petrified wood for which they are famous. "These lie spread about in the desert in incredible masses, partly broken up into small pieces, partly long, fallen tree-stems, without root or branches, but in a wonderfully good state of preservation."

Steaming through the Suez Canal on the 3d of February, and touching at Port Said on the 5th, they arrived on the 14th at Naples, the first European port they were to visit. The various incidents of a most enthusiastic reception followed close on each other's heels every day and night until the 19th, at Naples; and from the 20th to the 25th at Rome. National, civic, scientific and social demonstrations and courtesies of every kind were showered upon the members of the expedition. Drs. Kjellman, Almquist and Stuxberg, with Lieut. Nordquist, now set out for home by rail, and Lieut. Bove remained behind at his home in Italy, so that on the departure of the Vega from Naples on the last day of February, 1880, the members of the expedition on board were the commander, Nordenskiöld, Capt. Palander, and the Lieuts. Brusewitz and Hovgaard.

The Vega passed through the Straits of Gibraltar on the 9th of March, and anchored in the harbor of Lisbon on the 11th. Here they were welcomed, feted and decorated as at Naples until the 15th, when they sailed for Portsmouth, England. Meeting headwinds as she entered the English Channel, the Vega put in to Falmouth on the 25th, and the remainder of the month was occupied by Nordenskiöld and Palander in various receptions and courtesies from representative individuals and societies of "the land which stands first in the line of those that have sent out explorers to the Polar Seas."

On the 1st of April there was a reception breakfast and dinner at Boulogne, whence they proceeded to Paris, arriving on the morning of the 2d at 7 o'clock. "Our reception in Paris," says Nordenskiöld, "was magnificent, and it appeared as if the metropolis of the world wished to show by the way in which she honored a feat of navigation that it is not without reason that she bears on her shield a vessel surrounded by swelling billows." Dinners, balls, receptions, na-

tional, municipal and scientific, honors, attentions, decorations, were crowded fast upon the two distinguished leaders of the Swedish expedition, Nordenskiöld and Palander, beginning promptly on the morning of their arrival, and closing only on the eve of their departure. On the 9th they left Paris to join the *Vega*, which had meanwhile been taken forward to Vlissingen (Flushing), in the Netherlands, by Lieut. Brusewitz. Immediately on their arrival aboard, the *Vega* weighed anchor, the voyagers respectfully declining the proffered ovations of Holland and Belgium, "from want of time and strength to take part in any more festivities." As they approached Copenhagen, however, they encountered another wave of popular enthusiasm, the countrymen of Lieut. Hovgaard of the expedition offering their congratulations in a spontaneous outburst on the 15th, followed by more formal and official recognition of the already repeatedly described pattern until the 19th.

The final celebrations were reserved for the capital of Sweden, which had received such distinguished renown from the great exploit of her sons. Leaving Copenhagen on the evening of the 19th, they arrived off Dalarve, twenty miles from Stockholm, on the 23d, where they awaited the time appointed for the formal entry into the harbor of the capital of the nation. Meanwhile at Dalarve they were rejoined by their families and the absent members of the expedition. On the 24th, at 8 A. M., the *Vega* again weighed anchor and steamed slowly past Vaxholm into Stockholm. "We met innumerable flag-decked steamers by the way fully laden with friends, known and unknown, who with shouts of rejoicing welcomed the *Vega* men home. The nearer we came to Stockholm, the greater became the number of steamers, that, arranged in a double line and headed by the *Vega*, slowly approached the harbor. Lanterns in variegated colors were lighted on the vessels, fireworks were let off, and the roar of cannon mingled with the loud hurrahs of thousands of spectators. After being greeted at Kastelholmen with one more salute, the *Vega* anchored in the stream in Stockholm at 10 P. M. The Queen of the Malar (Stockholm) had clothed herself for the occasion in a festive dress of incomparable splendor. The city was

illuminated, the buildings around the harbor being in the first rank. Specially had the king done everything to make the reception of the Vega Expedition, which he had so warmly cherished from the first moment, as magnificent as possible. The whole of the royal palace was radiant with a sea of lights and flames, being ornamented with symbols and ciphers, among which the name of the youngest sailor on the Vega was not omitted. An estrade had been erected from Logaorden to the landing-place. Here we were received by the town-councillors, whose president, the governor, welcomed us in a short speech; we were then conducted to the palace, where, in the presence of Her Majesty, the Queen of Sweden, the members of the royal house, the highest officials of the state and court, etc., we were in the grandest manner welcomed in the name of the fatherland by the King of Sweden, who at the same time conferred upon us further marks of his favor and good will (commemorative medals, etc.) It was also at the royal palace that the series of festivities commenced with a grand gala dinner on the 25th of April, at which the king in a few magnanimous words praised the exploit of the Vega. Then *fête* followed *fête* for several weeks."

And greater than all festivities, the triumphant fact was duly registered as one of the great pivotal events in the records of humanity. The success of the Vega is one of the grand historic achievements of the race, and may lead directly to the discovery of the Pole. The more expeditions there are which owe their success to well-designed, carefully-executed plans, the more likelihood there is that a broad national or international polar expedition will be organized in such a manner as to command success. The wide experience and characteristics of Nordenskiöld mark him as the leader of that great achievement, if projected soon enough. He is now fifty, and there is no time to lose. The frozen north is no field for freezing age, but demands the vigor of manhood combined with the experience of mature years. Nordenskiöld is the man, and the world calls him to the task. Should he fail of reaching the Pole, he will not fail to make the feat more feasible for his successors.



PART VI.

THE JEANNETTE.



*“They should have died in their own loved land,
With friends and kinsmen near them;
Not have withered thus on a foreign strand,
With no thought save Heaven to cheer them.
But what recks it now? Is their sleep less sound
In the place where the wild waves swept them,
Than if home’s green turf their graves had bound,
Or the hearts they loved had wept them?”*

CHAPTER LXXX.

SOME COMMENTS ON ARCTIC NAVIGATION — ITS RETROSPECT, DANGERS, AND PROSPECTS—THE DESIRE OF JAMES GORDON BENNETT — THE PANDORA — HER VOYAGE UNDER ALLEN YOUNG — AT DISCO — AT UPERNAVIK — DISCOVERY OF SIR JOHN ROSS' YACHT MARY — NORTHUMBERLAND — ARRIVE AT PORTSMOUTH.

The careful reader must have long since noticed the almost rhythmical ebb and flow with which voyages of discovery alternately sought and abandoned each of the possible routes, first to the Indies, and later to the Pole. The West, Northwest, Southwest and Northeast Passages, had each its period of preference as the route to the East; and later, Baffin's Bay, the Greenland-Spitzbergen Sea, and Behring's Strait, as the highway to the Pole. Parry had pushed through the central route by Spitzbergen to $82^{\circ} 45'$; by the western route of Baffin's Bay and its outlets, Nares had reached $83^{\circ} 20' 26''$; and Wrangell, by what might be considered a continuation of the eastern route, by way of Behring's Straits—the line being as it were taken up where it had been dropped by Cook and others—had arrived at $71^{\circ} 43'$ off the Siberian coast. Meanwhile, the Northwest Passage had been found and surveyed in detail, in the interests of geography and general knowledge, long after its impracticability as a commercial route to the East had been fully recognized. And now the Northeast Passage was once more being tested, and with success, as we have seen, by Nordenskiöld. Of the interesting series of voyages recorded in this work, the chief impelling motive, in the earlier periods, was commercial enterprise, tinged with more or less of national glory or international jealousy, and never quite deprived of a laudable desire to increase the sum of human knowledge. At a later period, geography, and still later various natural sciences, together with an ever-increasing ardor to enlarge the volume of ascertained truth for its

own sake, have constituted the inspiration of these heroic endeavors. All the great nations of modern times have had their representatives in the long list of navigators whose names adorn these pages, showing that in the greater problems of humanity the whole world recognizes a community of interest, and an instinctive unity of purpose and effort.

Encompassed by hitherto insurmountable obstacles, and bristling with almost inconceivable dangers, Polar navigation has originated and developed more varied skill and heroic daring than the discovery and exploration of all the rest of the globe. It has had and still has, a peculiar fascination for the bravest and most adventurous of the race; and offers many of the grandest and most sublime attractions to compensate for its dangerous and monotonous desolation. The North Polar regions offer an ever-widening field of investigation to the scientist; and many problems of meteorology, light and magnetism are receiving elucidation from the discoveries made in high latitudes, while the artist finds much to enlist his enthusiasm in the grandly picturesque scenes presented in this huge laboratory of Nature. The vastness of her operations is exhibited on every hand in the huge icebergs and immense glaciers, clad in dazzling whiteness in the light of the long, unbroken Arctic day, or glittering in the moon's silvery rays, at intervals, in the Arctic night, or displaying a weird, melancholy beauty under the gentler radiance of the bright stars. Ever and anon the auroral arch, varied with floating banners of iris-hued light and fantastic gleams and flickerings of its ever-active and restless forces, flashes over the scene. As the bergs, packs, and floes drive before the wind or float with the current, they are ever assuming new appearances and presenting new combinations, demonstrating that activity or energy is the law of the universe. In all nature, inanimate as well as animate, unrest ever prevails; idleness or sloth has no place. Even where man attempts to pervert this law, he only exhibits his utter impotency; the indolent are left behind, and the secret forces of nature forthwith institute a series of special activities to disencumber the earth of their presence. The icebergs, under this resistless law of force, will at one time present the outline of some mediæval cathedral or feudal castle, and at another, a park of pyramids, mountain

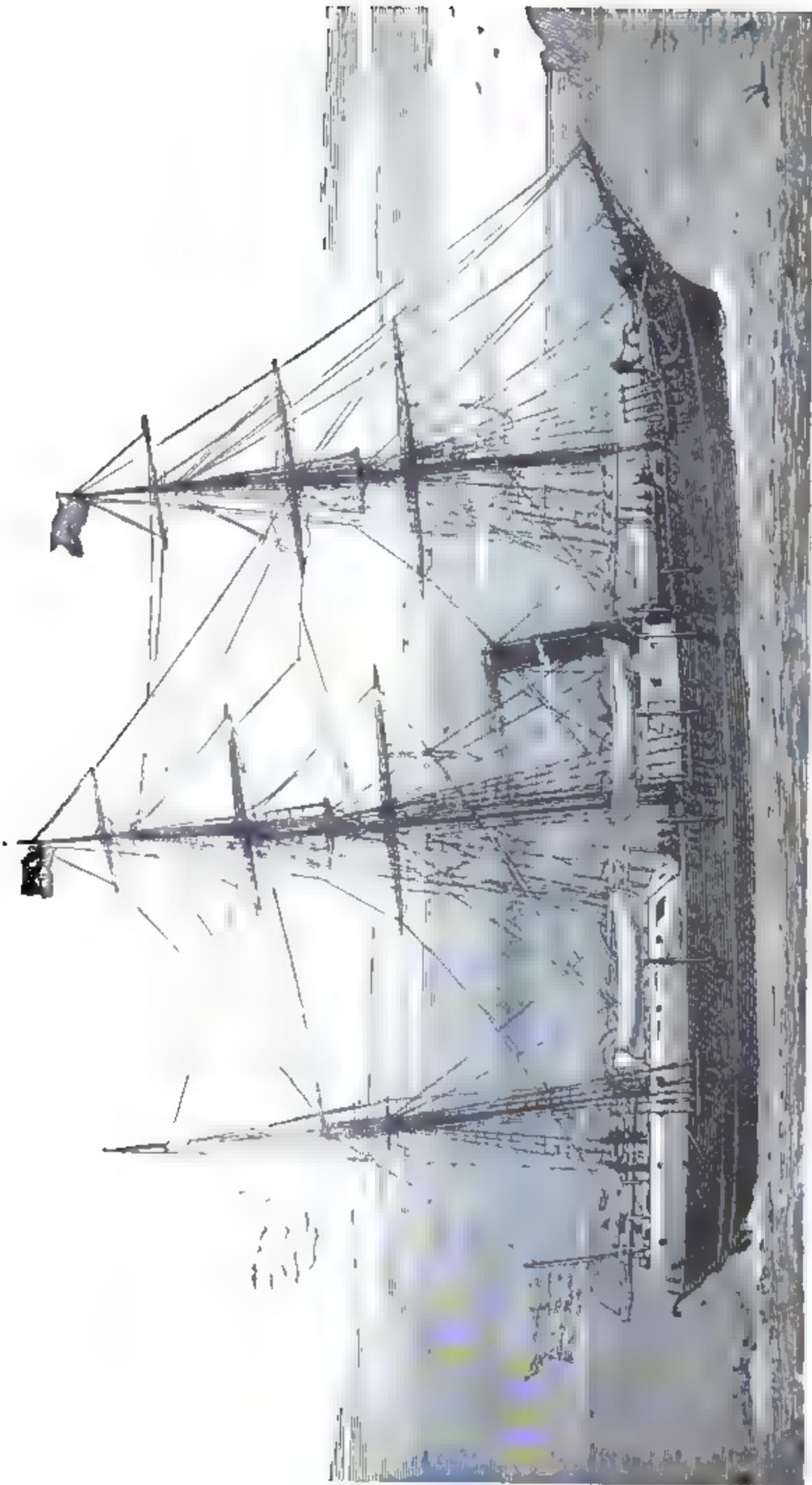
peaks, gigantic broken columns, colossal figures of men and animals, and in fact, the frozen counterfeit of almost everything grand or magnificent which man has constructed or nature produced in more favored climes. Again they are hurled against each other with a crash like appalling thunder or the roar of a thousand Krupp guns on a modern battlefield.

Much had been done; much remained to be done. America, the youngest of the great nations, had contributed her quota of distinguished Arctic and Polar navigators, but naturally wished, if it might be, to add fresh laurels to those already won. In conformity with the genius of her free institutions—which tend to direct the activities of government into their appropriate sphere of execution of the laws, while leaving to individual or associated enterprise of her citizens such pursuits as the love of fame or fortune may impel them to embrace—a new Polar expedition was set on foot, at the expense of one of her wealthy citizens, James Gordon Bennett, proprietor of the New York Herald, and only son of the founder of the paper, and the great fortune which those very institutions had enabled him to accumulate, became its patron. A not dissimilar enterprise, a short time before the death of the elder Bennett, received the support of the Herald. It will be remembered that Henry M. Stanley was dispatched with 200 men and all necessary supplies in search of the African explorer Livingstone, in 1870, and that owing to the timely thoughtfulness and public spirit of the Bennetts, he was enabled to reach the great traveler at a critical moment, on the 10th of November, 1871, and supply the resources which in his enfeebled condition were absolutely necessary to his safety. In 1875 Stanley was again sent out by Mr. Bennett on an independent expedition to the interior of "The dark continent."

The vessel which Mr. Bennett now set his mind on for an American Polar expedition had previously made an Arctic voyage in command of her owner, Captain, afterward Sir Allen Young.

VOYAGE OF THE PANDORA.

The Pandora was bought of the British Naval Department by Capt. Young, and specially fitted out by him for Arctic navigation. Although



THE JEANNETTE IN SAN FRANCISCO BAY.

originally built exceptionally strong, as was supposed, Young—who, it will be remembered, had served as navigating officer with M'Clintock in his successful search for relics of Franklin, in 1857-9—wished to adapt her as thoroughly as possible to her new sphere. Heavy iron beams and knees were put in amidships to increase her power of resistance to ice-pressure; and her hull was encased in an outer planking of American elm four and one-half inches thick, while her bows were clad with solid iron. These changes, while necessarily injuring her sailing qualities, were supposed to render her capable of resisting nips and squeezes that would crush a common-built ship like an eggshell. She was a bark-rigged vessel of four hundred and thirty-eight tons register, with steam-power which could on emergency be worked up to two hundred horse-power. Her officers and crew numbered thirty, and she was provisioned for eighteen months. “The promoters of the expedition,” says MacGahan, who accompanied it as Herald correspondent, “were Capt. Allen Young, on whom fell the principal burden and expense; Mr. James Gordon Bennett, whom I had the honor to represent; Lieut. Innes Lillington, R. N., who went as second in command; and the late Lady Franklin. She had insisted on contributing to the expenses of the expedition, almost against Capt. Young’s wishes, who felt by no means confident of doing anything that would entitle him to accept her willing contribution.” Lieut. Beynen accompanied her as representative of the Dutch navy, to gain experience in Arctic navigation, with a view perhaps to some future expedition to the north under the auspices of that government.

On the morning of July 28, 1875, they sighted Cape Farewell, and found themselves surrounded by a field of ice, which drifted by them dangerously near, while it stretched away in the distance as far as the eye could reach. The near ice presented almost every imaginable appearance—old castles with ruined towers, castellated battlements, frowning fortresses with broken loopholes; massive cathedrals with fantastic carvings and delicate tracings; triumphal arches with spires and pinnacles as well as heavy architraves, friezes and cornices. The animal and vegetable kingdoms were not without their representatives. Huge

mushrooms, with slender stem and broad drooping tops; great masses of immense foliage-crowned trees; graceful swans with slender necks poised at ease; lions, horses, and eagles; in short, one might fancy a resemblance in some ice-mass to anything he had ever seen or read of, all sparkling and gleaming in the bright morning sun. Treading their way laboriously and cautiously through the narrow, they finally got completely hemmed in. They now drove straight through the floe, across a narrow ice-isthmus. The wind was favorable, and they were proceeding at the rate of five knots an hour. In a moment the iron-clad bows of the Pandora plunged into the obstructing ice like a battering-ram. There was a loud crash; the ship quivered and groaned; the masts rolled up before her in great blocks, which fell into the water with a loud splash and an answering spray, and she was securely jammed in the ice. A moment of awful suspense followed, but there was scarcely time to take in the situation when it was found that the iron prow had quite demolished the ice, and it only remained to squeeze through the fissure that had been made. The ship wriggled through like an eel, and then shot forward, free and uninjured, into the lane of open water ahead. With many similar experiences they worked their slow way to Irgtut, where they were warmly welcomed by the Danish colonists. Proceeding forward they soon arrived at Disco, and were again cordially welcomed by the colonists and officials at that port. On the way they had been boarded by some trading Esquimaux in their frail kayaks, which drew from MacGahan the reflection, "Imagine a man getting into a canoe and paddling across the English Channel from Dover to Boulogne or Calais, to sell half a dozen trout!" Some of them had rowed fifteen or twenty miles to barter a little fish for coffee, biscuit, and tobacco. At Disco MacGahan had occasion to indulge in some reflections of another kind. Speaking of a local belle, he says, "It was a pure delight to watch her little feet flitting over the ground like butterflies, or humming birds, or rosebuds, or anything else that is delicate, and sweet, and delightful. It was not dancing at all; it was flying; it was floating through the air on a wave of rhythm, without even so much as touching ground."

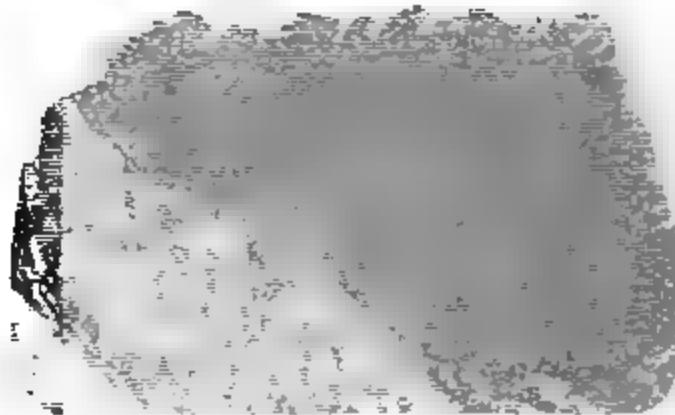
At Upernavik they took aboard some dogs for the expedition; and

learned that the Alert and Discovery, under Nares, had left there on the 22d of July. In latitude 74° they sighted the great Greenland glacier of that region, extending inland seventy or eighty miles. On the 19th of August, forty-two days out from England, they reached Carey Islands, and deposited two barrels of mail matter for the Alert and Discovery, but failed to notice Nares' cairn. At Beechey Island they found the yacht Mary, abandoned in 1851, in good condition. Northumberland House, erected by Belcher in 1854, as a depot for stores, had been broken into by polar bears. The ground was strewn with tins of preserved meats and vegetables, forty-pound tins of pemmican, great rolls of heavy blue cloth, bales of blankets and clothing, and hundreds of pairs of socks and mittens, resembling the wreck of some freight train, from which track and cars had disappeared. The marks of the wreckers were everywhere; they had gnawed into the barrels of salt beef, of which not a morsel was left behind; they had punched holes into the heavy pemmican cans, but were not equal to the task of emptying them of their contents. Near the house is the monument of Lieut. Bellot; here also, is the tombstone of Sir John Franklin; three miles farther up are the graves of five seamen of the Erebus, Terror, and North Star. "This Arctic graveyard is situated on a gravelly slope, which rises up from the little bay toward the foot of a high bluff, that frowns down upon it as though resenting the intrusion of the human dead in this lonely world. Sad enough looked the poor head-boards as the low-sinking sun threw its yellow rays athwart them, casting long shadows over the shingly slope, silent, sad and mournful as everything else in this dreary world." Landing on North Somerset, they discovered the cairn erected by Ross and M'Clintock in 1849, with the record addressed to Franklin.

Arriving at the entrance of Peel Strait, on the 27th of August, they found the way blocked by an immense ice-pack, which even the Pandora could not bore through, and were in danger of being imprisoned for an indefinite period, without a harbor, and without prospect of compensating achievement. Bearing away from this dangerous locality just in time to escape untoward and unprofitable detention, they arrived at La Roguette Island, and began to think they would perhaps reach Cali-

fornia before the close of the season, by the route mapped out for Franklin—southwest from Cape Walker to Behring's Straits. Instead of the anticipated open water and plain sailing, they encountered an immense ice-field. After three days, vain search for a lead, Capt. Young relinquished the hope of completing the Northwest Passage, and concluded to return to England.

With high winds, heavy snowstorms and obstructing ice-packs, they had a rather difficult homeward voyage. On one occasion, in a momentary lifting of the snow-clouds, they saw close at hand, and as it were, threatening to fall upon them, a precipitous cliff, presenting a most ghostly appearance, says Young, "the horizontal strata seeming like the huge bars of some gigantic iron cage, and standing out from the snow-face. In fact, it was the skeleton of a cliff, and we appeared to be in its grasp. For a few minutes only we saw this apparition, and then all was again darkness." They barely had room to pass between this cliff and the ice-pack, and after three hours of intense anxiety, a fortunate movement of the ice displayed a weak spot through which they hastily forced the ship, and thus escaped. On Sept. 10 they passed through a terrible gale, in which the Pandora was converted into "one huge icicle;" but they got safely to Carey Islands. This time they found Nares' cairn and a record addressed to the British Admiralty, which they conveyed home, arriving at Portsmouth Oct. 16, 1875, after a successful cruise of 100 days.



CHAPTER LXXXI.

MR. BENNETT PURCHASES THE PANDORA—EXPENSE OF THE EXPEDITION—THE CREW—LIEUT. DE LONG'S LETTER TO THE SECRETARY OF THE NAVY—HER DEPARTURE FROM SAN FRANCISCO BAY—A GRAPHIC DESCRIPTION—AT OUNALASKA—DE LONG COMMUNICATES VARIED INTELLIGENCE TO THE SECRETARY.

Mr. Bennett purchased the Pandora of her owner, Sir Allen Young, in the spring of 1878; and she was taken by Lieuts. DeLong and Danenhower, from Havre, France, by the Strait of Magellan to the United States navy-yard at Mare Island near San Francisco, where it was determined "to overhaul, refit, and strengthen her." "This conclusion," says the Secretary of the Navy, "was precautionary merely, inasmuch as she had been well constructed, and was believed to possess ordinary strength." An inquiry from the secretary elicited the report, "that extraordinary precautions were taken to strengthen the Jeannette before she left San Francisco; that ten feet of solid timber were placed in her bow; that iron beams were introduced on each side of her boilers to strengthen her sides, and that she was fastened through and through with wooden hooks, and that her bilge was strengthened with six-inch timber, and her deck frame renewed wherever required. In addition to her being a well built vessel these improvements must have given her such capacity to resist the ice as few vessels that have gone into the Polar regions have had."

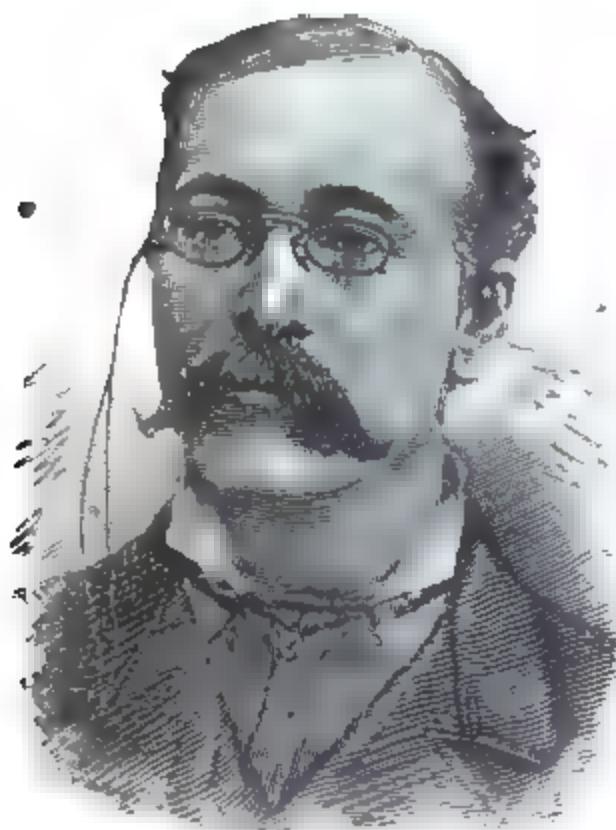
A later newspaper report adds: "Aft the mizzenmast she is almost entirely of mahogany. Her hull is sheathed with Australian ironwood, four inches in thickness. She is so modeled as to rise easily from the water when nipped by the ice, wherein lies the chief danger to all vessels traversing polar regions. Her form is therefore as great an element of safety as her superior strength. Previous voyages have tested her capacity thoroughly. Three times she was nipped in Melville Bay with

such force as to be raised several feet above the surface of the water, but she escaped without suffering the slightest damage. She was further strengthened against ice pressure by having ten feet of her bow filled in with solid dead wood, heavily bolted, just before leaving San Francisco."

From the outset the national American character of the expedition was provided for. By special Act of Congress she received an American register, with all the rights and privileges of a government vessel, and was re-named the Jeannette, in honor of Mr. Bennett's only sister. The Secretary of the Navy was authorized to accept her without expense to the government; the cost of the expedition to Mr. Bennett was estimated at \$300,000. She was put in charge of officers of the navy—Lieut. Geo. W. De Long, commander; Lieut. Charles W. Chipp, executive officer; Lieut. John W. Danenhower, navigator; George W. Melville, chief engineer; and J. M. Ambler, surgeon. With these were associated Jerome J. Collins, meteorologist and correspondent of the Herald; Raymond L. Newcomb, naturalist; and William M. Dunbar, ice pilot. The other members of the ship's company—carpenters, machinists, and seamen—were Jas. H. Bartlett, Geo. H. Boyd, Wm. Cole, Adolf Dressler, Hans H. Erickson, Carl A. Götz, Neils Iverson, Peter E. Johnson, Albert G. Kuehne, Henry H. Kaach, Geo. Lauderbach, Herbert W. Leach, Walter Lee, Frank Manson, Wm. C. F. Ninderman, Louis J. Noros, W. Sharvell, Edward Star, Alfred Sweetman, Henry D. Warren, and Henry Wilson; and three Chinese, Ah Sam, Long Sing, and Ah Sing, as steward, cook, and cabin-boy—in all thirty-two persons. In selecting the crew choice was made from 1300 applicants, no one being accepted under twenty-five, or over thirty-five, and care being taken that all were of average height, size, and weight, sound in all respects, and without tendency to consumption, of good character, northern born or raised, inured to cold, and accustomed to the sea. The seamen were to receive \$25 a month, and the others in proportion.

At a farewell reception tendered the officers by the Academy of Sciences of San Francisco, on the 16th of June, Commander De Long referred briefly to the manner in which private liberality and enterprise

was combined with government assistance to send out the expedition under the best possible auspices as a national undertaking. He dwelt upon the fact that the present was the first attempt to reach the Pole by way of Behring's Strait, and on the difficulties likely to be encountered. The ground to be traversed was entirely new, he said; for after passing 71° they were going out into a great blank space to determine whether it was water, ice, or land. He deemed it better not to say at present what they would do, but hoped to be held in remembrance until their return, when a recital of what they had done would be of greater interest.



CAPT. GEO. W. DE LONG.

On the 8th of July, 1879, De Long wrote to the Secretary of the Navy—"I have the honor to inform you that the Jeannette, being in all respects ready for sea, will sail at 3 o'clock this afternoon, on her cruise to the Arctic regions. I have also the honor to acknowledge the receipt of your orders of the 18th of June in relation to the movements of the Arctic Expedition under my command; and while I appreciate the grave responsibility intrusted to my care, I beg leave to assure you that I will endeavor to perform this important duty in a manner calculated

to reflect credit upon the ship, the navy, and the country at large. I beg leave to return thanks for the confidence expressed in my ability to satisfactorily conduct such a hazardous expedition, and I desire to place upon record my conviction that nothing has been left unprovided which the enterprise and liberality of Mr. James Gordon Bennett, and the experience of our Arctic predecessors could suggest."

Over 10,000 people witnessed the departure of the Jeannette; and 10,000,000 watched with interest for the announcement of the event. The circumstances are graphically described by the departing journalist

of the expedition, as follows: "The anchor is up, and the propeller is slowly revolving, giving the Jeannette just enough motion through the water to make us feel that we were off at last. The friendly waving of hats and handkerchiefs from the wharves, the shipping, and even from the distant points of vantage in San Francisco, tell us that the good people of the city, as well as the men of the sea, are giving us a hearty send-off, although we cannot hear the cheers. Our captain and first-lieutenant are on the bridge. The word is given. 'All hands give three cheers' Up into the port-rigging scramble the crew, the steam whistle marks the time. 'Hurrah,' 'hurrah!' Now we are off in earnest. The yacht club of San Francisco, under the command of Commodore Harrison, accompany us. How gracefully these pretty crafts skim about our vessel, like white-winged seagulls, as she solemnly moves toward the Narrows. We will leave them at the bar. One of them will take off from us a lady whom we have all learned to respect. It is Mrs. De Long, the wife of our gallant captain, who is now spending with him the last sacred moments before parting. This amiable and charming lady has been the life of our Jeannette family since it was organized. If we wanted to buy anything for any purpose, we went for advice to Mrs. De Long. The steamers, crowded with well-wishers, are now closing about us, as we wave caps and handkerchiefs to friends on board them. The Jeannette plows onward in the teeth of a smart breeze. Hill tops and wharves in San Francisco are crowded. It is a pleasant farewell scene on the Jeannette. Now we are approaching the Narrows. The final leave-taking will soon be given in cheers, then away to the great Pacific on our voyage to the Arctic seas. Not a man on board has the shadow of a melancholy thought on his face. People remark: 'What a good-humored lot of fellows.' We are happy in the knowledge that millions bear us friendly wishes. The sky ahead looks foggy. We will make off the coast to avoid the prevailing nor'wester and get into fair weather about five hundred miles westward. Then our good ship will point her prow to Ounalaska. Now we are abreast of the fortifications. We now see the old flag waving high on its mast over the stronghold of Uncle Sam. We salute it. A very interesting meeting is taking place in the



THE JEANNETTE PASSING THE GOLDEN GATE.

cabin between Mrs. De Long, Mr. Wm. Bradford, the Arctic artist, and Mr. Brooks, of the Academy of Science. We discuss the future. Mrs. De Long is enthusiastic. She says we must succeed, and offers some sensible advice on the subject of temperature.

"Puff! Bang! There's a salute from Fort Point. The barbette battery is belching away, and fat-looking lumps of white smoke are rolling down to the sea below. Our gallant friend, Major Hasbrock, of the fourth artillery, is on the ramparts. We hear the cheers and return them heartily. It is a handsome compliment. Blood is thicker than water. The army salutes the navy. Farewell, brave boys, may your guns always salute friends, and terrify enemies. The yachts are now passing astern. As each passes she salutes with dipping flags and cheers. They then scud off to come round again. The little tugs feel the motion of the sea, and begin to put back. The people on them cheer vigorously, and the tugs blow their whistles. These scenes occur every few minutes as our ship passes through the crafts around her. We are now opposite the Cliff House and Seal Rocks. The sea is calming down, and we bob along pretty steadily. Captain De Long just now asked me to give his love to all of you. I know you will accept the offering of a gallant seaman, who goes out to win honor for the flag. The hour is at hand when we must part from our shore friends. Leavetaking is the duty of the moment. We shake hands with noble friends. We send our warmest wishes for the welfare of those we leave behind. Time's up. We part company with civilization for the present."

On the voyage northward the Jeannette encountered a succession of head-winds, alternating with equally untoward calms, and after passing 45° , no less unfavorable fogs. Her course was for Akoutan Pass, between the island of that name and Ounalaska, both of the Aleutian group. They made land in a dense fog, on August 1st, which a party going ashore found to be Ougalgan Island, a formation of basaltic granite, bearing a surface deposit of scoria, and evidences of a comparatively recent volcanic disturbance. An active volcano was observed on the neighboring island of Ounalaska. Passing through the Pass and rounding Cape Kaleghtha, the Jeannette anchored at Port Iliouliouk of that island, in

latitude $53^{\circ} 52'$ by longitude $166^{\circ} 32'$. "The local scenery," says Collins, "is very imposing. The great green hills, covered with patches of snow; the luxuriant grass on the coast, the rugged, precipitous cliffs, and the detached, peaked rocks are the principal features. Nearly all are bold headlands. There is a total absence of trees. There is a large variety of flowering plants common to the temperate zone, some of which are very pretty. This whole region is volcanic; some of the large harbors are evidently old craters. Part of the harbor we now lie in, formed by an extensive subsidence as late as 1853, has deep water in shore, and thirteen fathoms at the buoy. There are not many resident whites, the population being chiefly Aleuts and Indians from the main land. There is a Russian chapel and a priest in the settlement."

From Ounalaska Commander De Long wrote as follows to the Secretary of the Navy: "I have the honor to report the arrival, on Aug. 2d, at this place of the ship under my command, and the continued good health of the officers and crew. I found at anchor here the United States revenue cutter Rush, the steamer St. Paul, and the schooner St. George, the last two named belonging to the Alaska Commercial Company, of San Francisco. This letter is carried to San Francisco by the said steamer St. Paul. I learned upon arrival, of the wreck of the brig Timandra, belonging to J. C. Merrill & Co., of San Francisco, on Nounivak Island, about four hundred and twenty miles to the northward of this place. The second mate and three seamen of said brig reached here on the 30th of July, bringing tidings of the disaster to that vessel, occurring May 25. The vessel they report as being a total wreck, although no lives were lost, and the cargo was nearly all saved. The crew built a boat from a portion of the wreck, eighteen feet long and six feet beam and partly decked over, and the four men mentioned above, having volunteered to come here in search of assistance, left Nounivak on the 26th of July, and reached here on the 30th. The Rush sailed today to rescue the balance of the crew, eight in number.

"The steamship St. Paul arrived from St. Paul's Island, Aug. 1, bringing the entire collection of furs from the Seal Islands and the northern settlements—about one hundred thousand skins—and will leave

to-morrow morning for San Francisco. The revenue cutter Rush, during her visit to St. Michael's and her cruise to the northward, passed through Behring Strait, some twenty miles to the northward, and eastward of East Cape in Siberia, without having encountered any ice whatsoever. Supposing that Professor Nordenskiöld had already passed south, no communication was had by the Rush with St. Lawrence Bay. No communication from St. Lawrence Bay had been received at St. Michael's at the date of sailing of the Rush, July 23, and consequently there was no knowledge of the safety or movements of Professor Nordenskiöld's party.

"It was my intention originally, as communicated to you in my letter of July 8, to stop at St. Paul's Island after leaving this place, but as the fur clothing, which I was to have received at that place, can be furnished here, I have concluded to proceed directly to St. Michael's, in Alaska, leaving here Aug. 6.

"From all the intelligence received from the northward it appears that the last winter has been an exceptionally mild one, and that no obstruction to navigation in the shape of ice has been encountered. I can but deplore that the necessity of loading this ship so deeply at San Francisco has made our progress thus far so slow, owing also to head winds and swell, as to make it doubtful whether we shall be able or not to profit by the open water in the Arctic Sea in our efforts to gain a high latitude this season.

"If, upon our arrival at St. Michael's, nothing has been heard of the party under the command of Professor Nordenskiöld, I shall proceed to St. Lawrence Bay, in Siberia, to obtain tidings of them and shall proceed subsequently in accordance with the general plan delineated in my letter of July 8.

"I would respectfully call your attention to the fact that the charts of this region are very meager. The most reliable is one published by the Imperial Russian Hydrographic Office in 1849, which chart was furnished me in San Francisco. The prevalence of fogs and the rapidity and uncertainty of the prevailing tides make an approach to any of the passes between the Aleutian Islands hazardous in the extreme."

CHAPTER LXXXII.

FROM OUNALASKA TO ST. LAWRENCE BAY — SOUNDINGS — RELIEF WATCHES — OFF STUART'S ISLAND — THE STOCK OF DOGS — CIVILIZED CUSTOMS — A VOLCANIC REGION — A HUNTING PARTY FROM THE JEANNETTE — A RUSSIAN BATH — THE FANNY A. HYDE — A FORCED TREATY WITH THE CANINES — VISITED BY TCHUKTCHIS — DE LONG'S DISPATCH.

The trip from Ounalaska to St. Lawrence Bay is thus described by Collins: "The change from the smooth water of the harbor to the rough sea outside was very marked, and we were scarcely outside Cape Kaleghtha, and working on a course east of north toward Nounivak Island, than the Jeannette began her gambols again, rolling and pitching so as to make locomotion difficult except between the cabin table and the partitions. The winds being favorable from the southward, the ship, under full steam and sail, rather astonished us by making five and six knots steadily for the first day out. But as the second day dawned with half a gale blowing, the Jeannette increased her speed, so that we actually made 173 miles in twenty-four hours, something that gave us much cause for rejoicing. The coal we got at Ounalaska, although it burned like chaff, made steam quickly, and our engines, thoroughly overhauled by Mr. Melville while in port, worked well. We congratulated ourselves, therefore, on a probable quick run to St. Michael's, and nothing seemed to threaten delay but the possible non-arrival of our supply schooner, the Fannie A. Hyde, of San Francisco. But in these latitudes uncertain winds are the rule during the summer time, so that we had to come down on the third day to our ordinary speed of four knots, which we carried into this port, making the run in six days exactly from Cape Kaleghtha to Stuart's Island, Norton's Sound.

"The importance of determining the character of the bottom as we

proceeded, rendered a daily stop necessary for sounding. We also dredged every day except when the water was too rough. Soundings ran from eighty to five fathoms as we came north on a bottom composed of fine gray sand and ooze, covered with moss-like vegetation which was inhabited by an extraordinary variety of marine life. We also used the deep sea cups and thermometers for determining the densities and temperatures at various depths. These I found to work very well, considering that our men are as yet a little awkward in handling the lines, but are improving very rapidly. Our hourly meteorological observations are made each day with the utmost regularity. We have divided up the time into watches, and the work goes on steadily. For instance, I begin at noon and stand watch (meteorologically speaking) until 6 P. M. I am then relieved by Mr. Chipp, first lieutenant, who observes at 7 and 8; then Dr. Ambler at 9, 10, 11, and midnight. My turn comes again, so I observe at 1, 2, 3 and 4 A. M., and am relieved by Mr. Danenhower, who takes 5 and 6 A. M. At 7 and 8 Mr. Chipp observes, and from nine to noon inclusive, Dr. Ambler.

Our hours of duty per day in making observations are therefore, Mr. Chipp, four hours, Mr. Danenhower, who is navigator, two hours; Dr. Ambler eight hours, and myself ten hours. Besides this I keep the regular meteorological record and note sea temperatures and densities, and make up my journal; so that you may see there is no time for doing nothing left for us on board.

“On the evening of the 11th we sighted land on the starboard beam—that is to say to the eastward—and by continuous sounding determined our locality to be off Stuart’s Island, in Norton Sound. The land was



JEROME J. COLLING.

low, and discernible only by a slight rise or hill which showed above the horizon. We steamed at a very moderate speed all night, and by ten A. M. on the 12th were at anchor opposite the little settlement and block-house known as Michaelovskoi by the Russians, and as St. Michael's by the Americans. We were soon after boarded by Mr. Neumann, the Alaska Commercial Company's agent, and offered the hospitalities of the place, with every addition to our supplies which the company's stores would afford. Going ashore soon after I found the 'fort,' a curious collection of wooden buildings, forming a small quadrangle, on the corners of which are little block houses, which were armed with small cannon during the Russian possession of Alaska, but which at present are of no special value for defense. Within the inclosure, and fronting inward, are the storehouses and dwellings. The latter are occupied by Mr. Neumann, the company's agent, and Mr. Nelson, an employé of the Smithsonian Institution and observer of the United States Signal Service, a few Russian workmen, and some Indians who work about the fort. The quarters of the agent and the Smithsonian collector are plainly but comfortably furnished, and it is clear that these gentlemen are philosophers enough to content themselves pretty well with their isolated position.

"All our dogs were at St. Michael's when we arrived. They are a fine-looking lot of animals, but inclined for a general row at the shortest notice. They loll around the inclosure or sit out on the rocks near the fort, and occasionally set up a long, peculiar howl that sounds at night like a summons of Satan to his satraps for a general council. At feeding time the dogs get their daily allowance of dry fish, and while that is being thrown to them the sounds of battle rise and float on the breeze. On general principles the Esquimaux dogs will fight, and it is often a matter of wonder what the row is about. The dogs will be walking or lying about quietly, when suddenly one will make a rush at another, and then the whole pack pitches in, every dog for himself. In these remarkable combats nine of the dogs originally provided for us by the Alaska Commercial Company have been killed by their fellow canines. We are getting some recruits now and expect to leave here with about forty-five good dogs on board. Of course we will have native drivers with us

to manage these unruly brutes, and I believe arrangements are now being made with Esquimaux hunters to act in that capacity. The storehouse of the Alaska Company here is filled with a collection of trade goods similar to that we found at Ounalaska, except that the assortment is not so varied, nor the quantity as great. The furs brought to the post are from the lower Yukon River region and the adjacent coasts. The Indians come in by villages, and under the general control of a chief, who directs the negotiations. In this way, fox, bear, sable, wolf and squirrel skins are procured in exchange for coffee, sugar, tobacco, powder, lead (shot and bullets), guns (muzzle-loading rifles and shot-guns), clothing and notions. Whalebones for sledge-runners are sometimes bought, but these come from the northern or Siberian coasts, and are regarded as valuable. Dogs are purchased, as in the present instance for us, for guns, the average price of a good dog being about \$7 in goods. Extra good dogs are worth as much as \$15, but that is a top price, and is sometimes given for a highly trained team-leader.

"As soon as the natives complete their trade they return to their villages to enjoy their newly acquired property, and the little fort is dull again until another party arrives from the interior. The experience of the agent and white residents here is a favorable one as regards the natives, but sometimes the latter become restless and inclined for war. Last year a chief residing about sixty miles to the northward made repeated threats to come in and clean out St. Michael's. The place was put in a fair state of defense by Mr. Neumann, and preparations were made to give the coming warriors a right hospitable reception at the rifle's muzzle. But--they never came. The warlike chief purchased two barrels of whiskey from some traders and went on an unusually heavy spree, which resulted in his having his head split open with an axe by his brother-in-law, a similar fate overtaking his son. Since this domestic tragedy occurred the people of the fort have heard no more threats from up the coast, and 'Peace, gentle peace,' prevails. The surviving relatives of the chief, associating the valiant man's death with the proprietorship of two barrels of whiskey, wisely came to the conclusion that the whiskey was the cause of the violent taking off, so they knocked in the heads of the

barrels, and let the evil spirits run. This precaution probably prevented the decimation of the tribe.

"The country surrounding the post is wholly volcanic. Every eminence in sight is the cone of an extinct volcano. The rocks are lava, which, in cooling, has split up into a rude columnar structure, and show in some places the evidences of pressure in the shape of curlings of the surface and other distortions. The exposed surfaces and those of fractures exhibit alike the honeycombing caused during cooling. The sand of the beach is composed of pulverized lava, and this material enters largely into the sand found off the coast from Ounalaska northward. Quite close to the settlement there is a crater which now forms the basin of a pretty lake. I have received specimens of lava from different points inland and along the shore, which will go to my geological collection. Immense quantities of driftwood may be seen along the shore of Norton Sound, and on the island beaches. This wood comes chiefly from the Yukon River, which empties into the Behring Sea by several mouths. As the Yukon drains a great timber country, and is navigable for over 1,800 miles from its mouth, the quantity of drift brought down and carried into the bays and sounds to the northward and eastward, is immense. The natives haul out the larger pieces and pile them up out of reach of the tide until they dry sufficiently for fuel. Such piles can be seen at intervals of a few hundred yards all around this great bay. The surface soil overlying the lava formation is mostly peat, and bears a close resemblance to peat lands elsewhere, except in the beauty and variety of vegetation that clothes the whole country. There are no trees, but the low shrubs, grasses, flowering plants and mosses are very fine, especially the latter, which vary more in color than I have seen in any other place.

A HUNTING PARTY FROM THE JEANNETTE.

"Up the sound which divides St. Michael's Island from the mainland the shores are chiefly salt marsh tracts, dotted with ponds, which are the breeding places of wild ducks and geese, snipe, and other water birds. To get something for the larder by way of change from the canned meat a party of us started up the 'Crooked Canal,' as it is called, in the

steam cutter. We carried a tent and provisions for two days, besides our guns and ammunition, blankets, etc. Our luck among the wildfowls proved indifferent, the birds being scared off by the steam escape from our cutter. We secured, however, about fifteen ducks and some thirty snipes. An Indian hunter acted as guide and pilot, but the man was in poor health and did not prove equal to any of us whites in endurance of fatigue. We camped for the night on the marsh edge and under a heavy rainfall, which soaked the ground and made us about as uncomfortable a lot of sportsmen as ever huddled together under canvas. Next morning the weather continued bad, and the Indian being used up with an attack of ague, we started back to the ship. In crossing the bar in face of a heavy sea the cutter took water so rapidly that we came near being swamped, and reached the ship after a long and most fatiguing struggle for life. We had all removed our outer clothing and boots preparatory for a swim, and when we got on board the Jeannette, worn out, hungry and wet, I can assure you the cabin fire and a hot breakfast were thoroughly enjoyed by the party. I must say that to the pluck and skill of Mr. Melville, the chief engineer, who had charge of the running of the cutter's engine, and to Mr. Dunbar, the ice pilot, who steered us, are due the safety of the whole party. Our signals of distress were misunderstood on the ship, and it was not until we were within a hundred yards of her, with our cutter half full of water and her boiler fire extinguished that a boat was lowered to rescue us. The party thus imperiled consisted of Mr. Melville, Mr. Dunbar, Dr. Ambler, myself, and our Indian hunter. To show the quickness of perception of the natives on shore I may mention that while we were struggling with the sea, and working to keep the boat afloat, the natives recognized our position and at once reported it at the fort. The ship was a mile nearer to us than the native village, yet no one on board seemed to understand the meaning of the jacket hoisted on a boat-hook, which Dr. Ambler was waving for nearly an hour before any stir was made to lower a boat.

"Our shallow bay has afforded us a fair supply of excellent fish, including some superb salmon. We have a net set, and daily get a good number of flounders and other small fish, besides an occasional beauty

with delicate pink flesh. None but those who have not tasted these delicacies for a month or so can appreciate the flavor of broiled flounder or salmon, pointed by appetite, and washed down with big cups of tea. I suppose an epicure would prefer a more refined arrangement of eatables and drinkables, but on this cruise such exacting persons would be miserable. We eat and drink things as they come, being thankful the while for such small favors as the Lord sends in the way of a change of dishes. After our adventure in the steam cutter we enjoyed the luxury of a genuine Russian bath at the fort. The bathhouse is a long structure fitted with two chambers, the outer and inner. In the latter is a stove-like fireplace with a receptacle for hot stones, which are placed there after being raised to a red heat. Then the smoke hole is closed, the skin-lined door made fast, and some water is thrown on the hot stones. Phew! what a temperature is raised. The blood almost boils in the veins, and one gasps for breath, but the pores are open, and the peculiar process of the Russian bath is gone through by the bather until human nature can stand no more. Then, sousing himself well in water, he rushes out into the antechamber, or outer room, where he is rubbed down, cooled off, and allowed to dress. The pleasant feeling experienced after bathing is certainly purchased by much broiling and stewing, but the beneficial effects on the system, when the bath is cautiously used, are very marked. Let me not forget the cigar and glass of Russian tea after bathing. These are absolutely necessary to true enjoyment. Although the bathhouse at St. Nicholas is not the most inviting looking place in the world, it serves its purpose admirably, showing that the value of things must not be judged by appearances.

"On the 18th our long-expected supply schooner, the *Fanny A. Hyde* of San Francisco, laden with coals and extra stores, was sighted off Stuart's Island, making for our anchorage. Never was a more welcome object presented to impatient mariners than the said schooner when she rounded the point of St. Michael's Island in full view of our ship. By noon she was alongside, and her captain in our cabin, relating the causes of his delay in arriving. Calms, fogs, etc., formed reasonable excuses for the slow voyage of forty-one days from San Francisco made by

one of the fastest schooners running out of that port. Similar causes detained us, although we had steam to propel us. But the *Fanny A. Hyde* had come at last, and that meant we might go on our way rejoicing in a few days, and after the coals and stores have been transferred to our bunkers and holds. We need the anthracite coal that has just come very much, as our present stock of soft coal would not last us any time, should we need to use it. To save delay we take a heavy deck-load of coal, as well as the quantity in our well packed bunkers, and the *Jeannette* is again laden down to her doubling, as deep as she was when leaving San Francisco. The schooner goes with us to St. Lawrence Bay, in Eastern Siberia, and about thirty miles south of East Cape.

"We have our dogs on board, about forty in number. They raise a tremendous row about every fifteen minutes, space on our crowded deck alone governing the number of combatants engaged. I think if we could give these unruly brutes room enough to fight, the battle would continue until the last pair died, chewing each other's throats. This dog war illustrates very amusingly the value of armed intervention at the right moment. When the bitterness of the combat reaches its height one of our men interferes with a rope's end, and with the utmost impartiality lays about him vigorously. A suspension of canine hostilities is the immediate, but, I regret to say, temporary result. The dogs make remarks and confer in a high key and retire for consultation, but like the conferences at Constantinople these interchanges of diplomatic confidences only seem to make matters worse in some other quarter of the deck, and the din of the battle is heard soon again. Still the Bismarckian rope's end works wonders, even though it enforces a Treaty of Versailles fifteen minutes after the Treaty of Prague has been ratified by the dog powers, and ominously swings like a Treaty of Berlin over the Esquimaux dogs.

"We have with us for the voyage north two natives from Norton Sound, or the St. Michael's district. One of these, Alexai, as he is called, speaks a little English, and is both intelligent and useful as a dog-driver and hunter; Aniguin, the other and younger native, is a fine-looking fellow, with a broad, boyish face, and pleasant expression. He speaks

no English, but gets along very well with the aid of his comrade as an interpreter. The Captain has entered into a regular agreement with these adventurous savages, by which he binds himself to bring them back, to support the wife of Alexai and the mother of Aniguin during the absence of the husband and son, to pay them regular monthly wages, and to give Alexai a Winchester rifle and a certain quantity of fixed ammunition when dismissing him from the service of the Jeannette. As these Indians are good, clever fellows, and important to us because of their familiarity with dog matters, I think we have them on very reasonable terms. Mrs. Alexai, a chubby-faced, shy, but good-humored looking young female, came on board to see her husband off on his long cruise. She behaved with great propriety under the circumstances, and, although an Esquimaux, did not show any inclination to blubber at parting with the one to whom she was sealed for life. Alexai behaved also with stoicism tempered by affection for his spouse. They sat together hand in hand on some bags of potatoes near the cabin door, and probably exchanged vows of eternal fidelity. I was greatly touched, and got up on the bridge with my sketch block, on which I outlined their figures. I had to take them as they sat, with backs toward me, for Mrs. Alexai was too modest to face the pencil. Before leaving the ship Capt. De Long gave the bereaved one a cup and saucer with gilt letters on it. She seemed overpowered with emotion at the possession of such unique treasures, and at once hid them in the ample folds, or rather stowage places, of her fur dress.

"As we left the Bay of St. Michael's on the evening of the 21st the guns at the fort and at the agency of the Western Fur and Trading Company across the bay, belched forth a parting salute. The sea was as smooth as glass, and the sky almost perfectly clear. Such weather at this season is not uncommon in Norton Sound, but not infrequently precedes a hard northern blow. This we got on the 23d, when we cleared Sledge Island and commenced to cross the waters of the straits. It was my watch (meteorological) from 1 A. M. to 4 A. M., and I noticed the smooth sea beginning to undulate heavily from the northward. This indicated at once a disturbance of the weather to the north and west.

Later in the day the sea rose to a very great height, washing our decks and carrying away some of our light works. The forecastle got well drenched, the bridge stove by a sea, and the captain's window broken in and his room flooded, by another. On deck we were part of the time knee deep in water. The wind howled for hours and sharply cut off the wave crests, so that the spray flew like small shot across the decks. The ship was hove to and we rode out the gale pretty well, considering that the Jeannette had all she could carry on board. As the sea moderated we got under way again and arrived here on the 25th, experiencing very fine weather when entering the harbor. Skin boats (baidaras) filled with dirty looking, skin-dressed natives of the Tchuktchi tribe, came alongside. They thought we were a trader. From these we learned about Prof. Nordenskiöld what I sent you by telegraph from San Francisco. I need not repeat here what I then told you, as it was substantially as the native chief told the Captain in my presence. Our schooner arrived yesterday (26th) with the balance of the coal which we could not take at St. Michael's. The Captain also desired to have a means of sending the very latest news regarding our movements and what we could learn about Prof. Nordenskiöld. All before us now is uncertainty, because our movements will be governed by circumstances over which we can have no control. If, as I telegraphed, the search for Nordenskiöld is now needless, we will try and reach Wrangell Land and find a winter harbor on that new land, on which, we believe, the white man has not yet put his foot. At the worst we may winter in Siberia and 'go for' the Wrangell Land mystery next spring. I am in great hopes we will reach there this season. We are amply supplied with fur clothing and provisions, so that we can feed and keep warm in any event for some time. Our dogs will enable us to make explorations to considerable distances from the ship, and determine the character of the country. Feeling that we have the sympathy of all we left at home, we go north, trusting in God's protection and our good fortune. Farewell."

The following is Commander DeLong's dispatch of the 27th of August, from St. Lawrence Bay, to the Secretary of the Navy at Washington: "Arrived 25th; leave for Serdze Kamen to-night. All well.

Natives report Nordenskiöld passed south three months ago, stopping here one day, having wintered at Kolyutchin Bay. Mentioned one officer, a Russian, who spoke the native language, as named 'Charpish,' possibly Lieut. Nordquist, of the Russian navy, accompanying Nordenskiöld, who said the ship was going home. Leave here to verify account along the coast. Hope to reach Wrangell Land this season." To the two native hunters and dog-drivers, who evinced some misgivings about the voyage to the unexplored north, DeLong said that himself and the ship's company were not bent on throwing their lives away, and that they would be entirely safe, as far as human energy and foresight could preserve them. He was evidently satisfied with the completeness of his outfit, and the ample provision which had been made for all their wants, as well as for a successful exploration of "the great blank space beyond the 71st parallel."



CHAPTER LXXXIII.

THE JEANNETTE ENTERS THE ARCTIC — ARRIVES AT KOLYUTCHIN BAY—FIRST BEAR AND SEAL KILLED—THE JEANNETTE FIRMLY FROZEN IN—DANENHOWER'S STATEMENT—THE WINTER NIGHT BEGINS—HERALD ISLAND IN SIGHT—THE JEANNETTE HELPLESS AND CRIPPLED—CONJECTURES AS TO THE JEANNETTE'S FATE—CONTINUED APPREHENSION.

The ship's company was now thirty-three, one of the Chinese having been permitted to abandon the expedition at St. Michael's, because of ill health, while, as has been stated, two Indians had been added to the crew. With the whole company in good health and excellent spirits, the Jeannette steamed away from St. Lawrence Bay on the evening of the 27th, at 7:30, and passing East Cape on the 28th, at 3 P. M., reached Cape Serdze Kamen, that is, Stone Heart—so called from a large heart-shaped rock off the cape—on the 29th, at 5 P. M. Here De Long deposited papers and a letter to the Secretary of the Navy, which came to hand thirteen months later. In this letter, after detailing their departure and arrival, as above, and the confirmation of the opinion already formed that the Swedish Expedition had passed safely south, he adds, "The officers and men under my command are all well, and we expect to sail to-night for Wrangell Land *via* Kolyutchin." It was now obvious that the Vega was the vessel reported by the natives of St. Lawrence Bay as having been seen in the outer haven or roadstead "for one day three months before"—in reality, for a few hours, about thirty-seven days before. The Jeannette arrived at Kolyutchin Bay on the 31st, and it now only remained for her commander to push forward before the close of the season, to such winter quarters for his vessel as fortune might supply on Herald Island or Wrangell Land, discovered or rediscovered by Capt. Kellett, in 1849. Accordingly they pushed northwest

at 4 P. M. the same day. After reaching Serdze Kamen, they had several interviews with the natives, some of the officers making two trips ashore, and some of the Tchuktchis getting to the Jeannette in their skin-boats. Among other things the winter quarters of the Vega were pointed out, and they found the natives "hospitable, stalwart and handsome," warmly clad and seemingly contented, though the visitors had traversed a barren, forbidding tundra, to reach them.

On the 2d of September the Jeannette was seen about six miles ahead by the whaler Sea Breeze, in about $70^{\circ} 52'$ by 174° , in an open channel—between an eastern floe and a western pack, with another pack to the north, making west-northwest for Herald Island or Wrangell's Land, but a few miles nearer southeast of the latter than the former. On the forenoon of the 3d she was seen several times—whenever the fog lifted—by the same bark, which was following in her track, at a distance now of nine or ten miles. "On the afternoon of the 4th," says Capt. Barnes of the Sea Breeze, "it cleared up nicely, with nothing in sight but ice far and near." This was the last seen of the Jeannette by any one outside of her own company.

It was, however, afterward ascertained that they sighted Kolyutchin Island on the 1st of September, and Herald Island on the 4th. They saw the whaler already referred to, and stopped engines in the hope that she would approach, exchange courtesies, and take home their mail. While lying to they killed their first bear and seal on an ice-floe. On the 6th, with Commander DeLong aloft in the crow's-nest, on the lookout, she entered a lane which he supposed was the continuation of the lead between the east and west packs they had been following, and which he hoped might be followed in safety into one of the many *polynias* or expanses of open water, so often referred to by Russian navigators and sledge-explorers in those regions. Through the rapidly-forming new ice the iron prow of the Jeannette rammed her slow way until 4 in the afternoon, when she became immovable. All efforts to push forward proved vain, and no lane presenting itself on either hand, they were compelled to desist, and await the chances of the morning. Her fires were only banked, so as to be ready to push

forward at a moment's notice. The night proved exceptionally cold for even those high latitudes, and the new ice could be almost seen to grow thick and strong as they helplessly looked on.

On the morning of the 7th the Jeannette was found to be firmly frozen in. A full examination showed that she was surrounded by an accumulation of ice-floes frozen together by the new ice, and extending perhaps four miles. The old ice was in pieces ranging from ten square yards to several acres, with narrow veins of water now frozen over with new ice. In that one unlucky night she had involuntarily formed a nucleus around which the moving floes were arrested long enough to be welded into one solid mass by their mutual impact, the new ice serving as an effective solder. Herald Island was in sight at a distance of twenty-one miles; but when an attempt was made by Chipp, Dunbar, Melville and Alexai, to effect a landing there on the 13th, it proved inaccessible because of open water within six miles of land. The next day the party returned, it being deemed inadvisable to prolong the effort, necessarily attended with much danger, for the barren achievement of landing on the island while there was no chance of working the ship thither into harbor. There was the further risk that such exploring party might be left behind, as the vessel was entirely uncontrollable, and might be carried away with her ice-dock before their return. Drifting northwestward, they sighted Wrangell Land to the south, on the 21st of October, and indeed saw it frequently afterward, to the south and west, and on the 28th and 29th of October were so near that they could distinguish some of its mountains and glaciers, which eventually grew to be like familiar acquaintances, as they remained so long beset in those waters. The whole month was very quiet, the nights being very clear and beautiful. Even in September there were no equinoctial gales as anticipated.

"About the 6th of November," says Danenhower, "the ice began to break up. We had previously observed considerable agitation about the full and change of the moon, and attributed it to tidal action. This was observed particularly when we were between Herald Island and Wrangell Land, and when the water was shoaled—that is, about fifteen fath-

oms—the ice began to break round the ship, and a regular stream of broken masses gradually encroached upon us. From aloft the floe that had appeared so uniform a few weeks before, was now tumbled about, and in a state of greater confusion than an old Turkish graveyard. Tracks began to radiate from the ship, and the noise and vibration of distant ramming were terrific, making even the dogs whine. Nov. 23 was a calm, starlight night. I got good star observations, with Melville marking time, at 11 p. m. I was working them up when a crack was heard, and we found that the floe had split and that the ice on the port side had

drifted off, leaving the ship lying in a half cradle on her starboard bilge. The water looked smooth and beautiful, and there was no noise save that of four dogs which had drifted off with the port ice. We had previously taken in the observatory and had prepared for such an accident, but on the starboard side the steam cutter and the men's outhouse had been left. We got the steam cutter aboard, but left the outhouse standing. This was Nov. 23."

The vessel was at all times in more or less imminent danger of being crushed by some violent

movement in the surrounding ice, which drove her hither and thither under the changing pressure of winds and currents. Engineer Shock's heavy truss, with which she had been strengthened at Mare's Island, alone saved her from being crushed on the 21st. After a week of specially severe nipping and squeezing, she was forced into open water on the 25th, and drifted forty miles without control until evening, when she was made fast to a solid piece of floe, where she was soon again firmly beset.

"Several gales," continues Danenhower, "the heaviest being about



LIEUT. JOHN W. DANENHOWER.

fifty miles an hour, occurred in the fall of 1879. The long night commenced about the 10th of November and lasted till the 25th of January, 1880. On November 1 the winter routine commenced. At seven, all hands were called up, and fires started in the galleys; at nine, breakfast; from eleven to one guns given to all hands to hunt, and for exercise on the ice; at 3 P. M. dinner, then galley fires put out to save coal; between seven and eight, tea, made from the Baxter boiler, which was used constantly to condense water, we having found that the floe-ice was too salt for use, and the doctor insisted on using condensed water. The boiler was originally intended for the electric light, but it was found that we could not afford to run the light, so we used the coal in condensing water. Twenty-five pounds of coal per day was allowed for heating the cabin, twenty-five pounds for the forecastle, and ninety pounds for the ship's galley for cooking purposes."

From the date of imprisonment, the story of the ship and her company is one uniform record of her stout resistance, with some variation in incidents, and of their good conduct and sustained courage. The discipline was excellent, there being but one instance of punishment, for thoughtless profanity, during the whole period of detention. Officers and crew were well quartered and fully provisioned, and the general health was unimpaired. There was a formal medical examination on the first of every month. With a school of navigation and occasional amateur theatricals, besides the routine duties and the special labors hereafter mentioned, the weary days sped on with greater cheerfulness and contentment than could have been expected. The commander was careful to have religious services every Sunday, it being now very generally admitted that such devotional exercises possess a very specific value to persons so circumstanced. Thanksgiving, Christmas and New Year's were observed aboard the Jeannette with subdued festivity befitting her perilous position. Unfortunately the opening year brought them only fresh perils. Nips and squeezes from the besetting ice became again frequent and severe, and early in January, 1880, the fore-foot of the vessel was violently wrenched out of place. On Jan. 19, after several days' anxiety from the crushing strain of the ice on the ship, and the noise

made by the rising and bursting of the floe, it was finally discovered that the ship, after receiving several severe shocks, was leaking badly. Steam was got on the engine boilers, and both steam and hand pumps were worked day and night until the ship was freed from water. Stores were hoisted out of the hold and all preparations made to make good the retreat to Wrangell Land if forced to abandon the ship. They continued to drift northwest, and steam was necessary to pump the ship until May 18, 1880.

On the 1st of February they were distant about fifty miles from Wrangell Land. "About the middle of February we were found to be about fifty miles from the place where we had entered, and Herald Island was said to have been in sight during one day. During these five months we had drifted over an immense area, approaching and receding from the 180th meridian, but I do not think we crossed it at that time. We continued to drift in this uncertain manner. We noticed that the ship always took up a rapid drift with southeast winds and a slow drift with northeast winds, owing, doubtless, to Wrangell Island being under our lee. Southwest winds were not frequent." On the 22d they dressed the ship in honor of the day, with hearts full of tender memories of home and kindred as well as the hallowed associations appertaining to the festival. The coldest weather experienced during the whole period of detention occurred in this month, the thermometer sinking on one occasion to 58° below zero. In March they lost sight of land, with the Jeannette helpless and crippled, still aimlessly drifting with the uncertain and dangerous pack. April followed without change. In the meantime a watertight bulkhead had been built into the forward part of the ship, and the spaces between the ship's frames filled in with meal, tallow, ashes and oakum, to keep out the water. "March and April, 1880," says Danenhower, "were passed quietly, and we were surprised at not having any March gales. The geese and wild fowls that some of us expected to see on their spring migration did not put in an appearance. One poor eider duck fell exhausted near the ship, and one of our sportsmen shot at it, and after administering chloroform it succumbed. There were some birds seen later in the season moving to the westward, but they were not

numerous. A great many mussel shells and quantities of mud were often found on the ice, which indicated that it had been in contact with land or shoals. Our hunters ranged far and wide and often brought in small pieces of wood—on one occasion a codfish head, and on another some stuff that was very much like whale blubber, all of which had been found on the ice." Early in May, under the influence of gentle south and southeast winds they drifted steadily to the northwest. After May 18, 1880, the water was pumped out night and day by hand pump or windmill pump until the ship was destroyed. In June the snow melted from the surface of the floe, but it would have required a cargo of torpedoes to set the ship free, so firmly was she embedded. The birthday of the nation was duly celebrated by the usual display of bunting, the vessel being gaily decorated in her holiday attire, and by a festive entertainment for officers and men. The thoughts of home, which they had now abundant reason to apprehend they might never see again, must have mingled painfully or been no less painfully thrust aside, so as not to mar the current of their transient inerriment. For about fifteen days in July the weather was very bright and pleasant; but the latter part of July and the whole of August were very bad, being raw, foggy, and unhealthy. After a short release from her immediate ice-envelope in the height of summer, the Jeannette, which had in the meantime drifted far to the northwest of Wrangell Land, became again firmly embended in ice eight feet thick, on the 6th of September, just one week before the relief ship Corwin relinquished the search for her on the east side, as related in the next chapter.

Meanwhile, conjecture as to her fate had become ripe at home. Indeed, the public alarm developed early, one might say prematurely. It was understood theoretically, that the vessel had got beyond the channels of regular, or even occasional communication; but even this did not prevent a sort of instinctive feeling of apprehension, which manifested itself within a few months after her disappearance. Attempts were made by press and platform to allay the public alarm, by showing its unreasonableness, and drawing attention to the fact that this was exactly what had been anticipated. "No news is good news," was repeated again and

again, showing, as was claimed, that the Jeannette had got where she expected to go, into winter quarters on Wrangell Land, and had not been driven back to Siberia, or through Behring's Strait.

It must be confessed that the reasoning was faultless, and was not without effect. But when the whaling fleet of 1879 had returned later than usual, and brought no word, and when it was further learned that two of their number, the Mount Wollaston and Vigilant were missing, not having been seen later than Oct. 10, and that too in the same region in which the Jeannette had last been seen, the public mind became perceptibly more disturbed. It was apprehended that a like misfortune had befallen the three, and that they had all miserably perished in the ice. The winter passed uneasily in this regard; and in the spring petitions were forwarded to the naval authorities asking that a relief expedition be sent forward in search of the missing ships. Appeals were also made to Congress by the Geographical Society; and some of the more prominent universities urged immediate attention, as delayed expeditions would be very likely to prove of no value.



CHAPTER LXXXIV.

JEANNETTE RELIEF EXPEDITIONS IN 1880—THE CORWIN—CAPT. HOOPER—AT OUNALASKA—AN IMPENETRABLE WALL—A FRIGHTFUL SCENE OF DESOLATION—A SHIP APPREHENDED—THE LOTILA — A WRECK — THE CORWIN SIGHTS WRANGELL LAND — THE ENGLISH RELIEF YACHT EIRA — FAILURE OF THE EXPEDITION — SECOND AMERICAN RELIEF EXPEDITION, THE GULNARE — AN ADVERSE REPORT — REFITTED AND MANNED — A DISASTROUS DELAY—FURTHER HINDERED BY THE ELEMENTS—AN ABORTIVE EFFORT.

Early in April, 1880, the steam revenue-cutter Thomas Corwin, was ordered from Astoria, Oregon, into dry-dock at San Francisco to be repaired and strengthened before setting out in search of the Jeannette and the missing whalers. She was sheathed with oak plank an inch thick, and was furnished with an adjustable ice-breaker made of boiler-iron. A new steam windlass was put in, all her machinery was thoroughly overhauled and renewed. The Corwin was built at Albina, Oregon, in 1876, of two hundred and twenty-seven tons Custom House measurement, one hundred and forty-five feet long, twenty-four feet beam, and eleven feet depth of hold. She was constructed entirely of Oregon fir, copper fastened, and unusually strong. Capt. John W. White, one of the most experienced officers in the Marine Revenue cutter service, superintended her construction, and for once, at least, the government got the vessel that was ordered, without "a steal." She is a beautiful craft, and with steam up she glides through the water "like a thing of life." Her propelling power is a vertical inverted cylinder, steam jacketed, thirty-four inches square, with a surface condenser. She has an expanding pitch propeller ten feet in diameter, and is capable of making eleven knots an hour under steam—the mean pitch of the propeller being sixteen feet.

She was placed under the command of Capt. L. C. Hooper, of the United States navy, a man of large experience and excellent training in his profession, and in the prime and vigor of manhood, being not quite forty years old. Capt. E. H. Smith, long familiar with Arctic navigation, took service as ice pilot; and the ship's company comprised thirty-eight others, officers and men—in all forty persons. She was provisioned for twelve months, and carried one hundred tons of coal in her bunkers. The Alaska Commercial Company furnished letters of introduction to their agents in the north, commanding them to render all possible assistance to the captain of the Corwin. Capt. Hooper's instructions included attention to the usual revenue service, and an inquiry into the alleged starving condition of the inhabitants of St. Lawrence Island, besides making such observations as to currents, tides, temperature, and the like, as circumstances would permit, but all in subordination to the main purpose of the expedition, the relief of the Jeannette and the missing whalers. On the eve of departure Hooper thus sketched his intentions, which were substantially in accord with his instructions:

"I will seek the whalers first. If I find them I can give them two months' rations at least; if they have sick who need to be taken out of the Arctic I will return with them to St. Michael's; load up again with coal, all we can carry, and go back again after the Jeannette. If Capt. DeLong has taken to land I will follow him, and I think I can stand a few hundred miles in a dog sledge."

Arrived at Ounalaska, the Corwin shipped seventy tons of coal, and left on the 8th for St. Paul's Islands. Here they procured sealskin clothing for officers and men, and putting the ice-breaker in place, started northward. On the 11th they first encountered the ice, at $60^{\circ} 45'$ by $167^{\circ} 50'$, north of Nounivak Island, with a fresh gale blowing from the southwest. Trying in vain to get around the floe, they entered it on the 13th, after the gale had subsided. Threading their way wherever a lead appeared in the ice they pushed on slowly to the north, making forty miles the first day, and twenty on the second. On the 15th and 16th they made no progress, and were kept fully occupied in saving the vessel from destruction by the floe, with

which they drifted helplessly hither and thither. Under a fierce north-east wind and snowstorm on the 17th, they succeeded in anchoring in the shelter of Cape Romanzoff, and rode there in comparative safety until the morning of the 18th, when the wind shifting to the northwest, they were in danger of being driven ashore by the returning ice. They weighed anchor and stood out to meet the ice-pack which presented an impenetrable wall, apparently without lead or opening of any kind. Driven back by this formidable mass, the Corwin soon found herself well in shore in only sixteen feet of water, where they had the good fortune to spy a lead into which they hurriedly shot, anchoring to a piece of ice which was aground in over thirty-two feet of water, and covered about four acres. When the gale subsided the ice began to drift away from shore, giving them an open channel to Norton Sound, where they anchored on the 19th, but at a distance of sixteen miles from St. Michael's, the sound being filled with ice. The vessel came very near losing her rudder in the conflict with the pack, and Capt. Hooper now devised and adjusted a contrivance whereby it might be unshipped in two minutes. The ship had shown good power of resistance, and had come out of the ordeal uninjured.

They were soon visited by a native messenger dispatched by the agent of the Alaska Commercial Company, who reported that the winter of 1879-80 had been terribly severe, with an unusual number of heavy snowstorms and high winds; and that the ice had broken up unusually late. A break occurring in the ice, they were enabled to reach the harbor of St. Michael's on the evening of the same day, the 19th of June. In compliance with that part of his instructions, Capt. Hooper, on the 23d of June, steered across Behring Sea to St. Lawrence Island, a little over midway to the Asiatic coast, where they found the reports of destitution fully and fearfully confirmed. The inhabitants had been in a starving condition for two years. The first village visited was entirely deserted. The second, some miles distant, presented a frightful scene of desolation. Not a living being was to be seen. The dead lay unburied on the hillsides and in their beds, just as they had expired. Further westward, at North Cape, a similar spectacle was witnessed. At first it was

thought that there had been an epidemic, but there is no doubt that there was sheer starvation, from which from two hundred to five hundred persons died. Happily a whale was caught, and the lives of the remnant of the settlement were preserved.

Procuring twenty-five tons of coal from the agents of the Russian government at Plover Bay, Siberia, Capt. Hooper proceeded north, entering the Arctic Ocean on the 28th of June. Following the ice-pack around from Cape Serdze Kamen on the Asiatic side to Point Hope on the American, about on the parallel of 69° , and communicating with the natives and whalers on both sides of Behring Strait and within the Arctic Ocean, they failed to learn anything of the Jeannette, the Mount Wollaston, or Vigilant. "The whalers," says Hooper, "without an exception, gave it as their opinion that nothing will ever be heard of them." They also reported that in the Arctic Ocean the winter of 1879-80 had been very mild, judging by the year's ice which was exceptionally thin. This showed a marked difference between the regions north and south of Behring's Strait. Between Kotzebue Sound and Cape Prince of Wales, they fell in with the trading bark Leo, and finding her in possession of arms, ammunition, and whiskey, Capt. Hooper placed her in charge of Lieut. W. H. Hand on the 4th of July, with orders to take her to San Francisco to be tried for violation of the revenue laws. Hooper continued his voyage, but finding it impossible to penetrate the pack to the north and reach a harbor, he returned to St. Michael's on the 7th, for coal, supplies, and light repairs. The Corwin again pushed north on the evening of the 10th, keeping to the American shore as far as Cape Lisburne— $68^{\circ} 56'$ by $163^{\circ} 34'$ —whence they proceeded along the edge of the pack to the northwest toward Plover and Herald Islands, reaching within thirty miles of the latter. Here they were compelled by the ice to give way to the south, as far as $69^{\circ} 30'$, whence they struck southeast toward Kotzebue Sound. Making another effort to reach Herald Island, they steered once more to the northwest, and arrived within twenty miles of land on the 4th of August.

Steaming south to the Russian port on Plover Bay for a fresh supply of coal, the Corwin was soon headed north again for a fourth effort to

reach Herald Island. Driving her ice-breaker through fifteen miles of drift ice, she was within three miles of land on the 21st, when her further progress was stopped by pack-ice, piled forty feet high along the shore. Unable to land, they closely scrutinized each point and hill-top, but saw no signal, and inferred that whatever else the barren wastes might contain, the missing navigators were not to be found there. The coast line was seven to eight hundred feet in height, and the inland hills rose to about 1500 feet. On the 23d Capt. Hooper pushed to the east toward Point Barrow, and thence southwest to Cape Lisburne. Four miles from the cape Capt. Smith, the ice pilot of the Corwin, discovered a vein of coal, of which, when tested and found satisfactory, a supply was taken on board, affording a valuable saving of time. Going to and from coaling stations had hitherto consumed an important portion of the short cruising season; and the discovery of this vein at such an accessible point of the Arctic Ocean, will doubtless prove of great advantage to future explorers.

On the 29th of August, at Point Hope, they met the trading schooner Lotila, and breech-loading guns being found aboard, in violation of the revenue laws of the United States, Capt. Hooper placed her in charge of Lieut. John Wyckoff, to be taken to San Francisco. She carried the American flag, but was owned in Honolulu; and had been seized, in 1879, for carrying whiskey.

On the night of the 4th of September the Lotila, during thick, foggy weather, went ashore on the north side of St. Lawrence Island, about fifteen miles to the east of Cape Chebkak. What provisions in casks could be thrown overboard having been washed ashore were immediately seized by the natives, and with difficulty the officers and crew could get enough to provide for their lengthy stay till relief might come. Lieut. Wyckoff and five of the crew volunteered to take the whale-boat and make for Plover Bay to get assistance from any passing whaler. They reached there on the 14th, after forty-eight hours' rowing, bailing most of the distance. Capt. Owen, of the Mary and Helen, took them on board on the evening of the 17th, and sailed for the wreck. The Lieutenant says the confusion and uproar on the beach were frightful beyond

description. All the natives from Sandspit were there, and had taken possession of everything. Capt. Dexter, of the wrecked Lotila, permitted them to do so. The steamer sent three boats to the wreck and had hardly time to get their clothing and what could be taken off before a fearful gale sprung up, that threatened to engulf everything. The natives got a large quantity of ammunition; the Lieutenant placed the rifles beyond their reach. Capt. Dexter, two mates and two seamen were placed on board the Julia Long bound to Honolulu. Lieut. Wyckoff and the others proceeded to San Francisco.

Meanwhile, a fifth trip to the northwest was undertaken by the Corwin, but her progress was barred at a distance of forty miles from Herald Island. On the 11th of September they sighted Wrangell Land, twenty-five miles distant, and so surrounded by heavy pack-ice, with new ice rapidly forming, that to attempt a nearer approach was to endanger the safety of the vessel. She had steamed over 6,000 miles within the Arctic Ocean without gaining any tidings of the missing vessels, and left on the 13th for San Francisco, where she arrived in safety on the 14th of October. The ice pilot and engineers freely affirmed that "Capt. Hooper made the Corwin go 'for all she was worth.' There was no rest, and she had traveled over every inch of the Arctic Sea between Wrangell Land and Point Barrow."

ENGLISH RELIEF YACHT EIRA.

In England, also, anxiety for the welfare of the members of the American Polar Expedition of 1879, early began to be felt. W. Leigh Smith a gentleman of fortune and experience in Arctic navigation, left Peterhead on the 19th of June, in his steam-yacht Eira, of 360 tons burden, to search for, and if it might be, to succor the Jeannette. Mr. Smith had made his first Arctic voyage in 1871, in his yacht Samson, and had added some valuable contributions to the stock of general information relating to those regions. Again, in 1872-3, he had gone in the Diana on a second voyage to high northern latitudes, but the results were not as noteworthy as on the first trip. On this voyage of 1880, arriving at Franz-Josef Land, he concluded that it was either one of an extensive

group of islands or the headland of a continuous stretch of land extending far to the northwest. He also discovered in the portion he was able to explore a desirable harbor, which is likely to prove of great benefit to future explorers in those remote regions. The eminent German geographer, Dr. Petermann, had broached the theory that an archipelago would be found to surround the North Pole, and Mr. Smith's impression of Franz-Josef Land tended measurably to confirm that opinion; but it is almost needless to repeat that theories in geography have proved of little value in the history of mankind. The actual has ever disproved the theoretic; and nothing can be regarded of value that has not been tested by actual discovery. In this work the reader has had placed before him the successive stages of northern exploration, without having his attention distracted by a multitude of theories which might or might not be very reliable. Mr. Smith received the gold medal of the Royal Geographical Society in appreciation of his important services; but as may be guessed, his course was far away from the scenes of the Jtan-nette's weary warfare with the ice.

A second American relief-ship, the Gulnare, sometimes called the Howgate Expedition, in honor of Capt. H. W. Howgate, "the father of the enterprise," is scarcely worthy of mention, so abortive did it prove. The vessel had been disapproved by two boards of examiners, but the persistence of Howgate succeeded in over-riding all opposition; and she left for the north on June 22, 1880. She was permitted to carry the American flag by a strained interpretation of the Act of Congress authorizing the expedition. She returned on the 24th of October, having achieved the barren result of making a voyage to Disco and back.



CHAPTER LXXXV.

THE JEANNETTE IN THE EXTREMITY OF PERIL—ANXIETY ON SHIP-BOARD—NEAR WRANGELL LAND—CHIPP'S SOUNDINGS—TRACTS FROM THE JEANNETTE'S LOG—THE ICE BORED—A PARTY OF EXPLORERS—DISCOVERIES—A THICK FOG—THE LAST ENTRY IN THE LOG.

We left the Jeannette beset in the ice at the early closing-in of the Arctic winter of 1880-1. She was encircled, as stated, by ice eight feet thick, besides which there were immense masses shoved under her keel, and her bows were lifted at an angle of about one degree, while she was also keeled to the starboard about two degrees. She was so firmly held in this gigantic vise that when the blacksmith struck his anvil in the fire-room one could see the shrouds and stays vibrate, and they were not very taut. The executive officer had slackened up the rigging during the first winter, and the contraction of wire rigging by the intense cold was of course very great. The ice was piled up under the main chains and as high as the plank-sheer. In the vicinity of the ship the ice was tumbled about in the greatest confusion, and traveling over it was almost an impossibility. In the month of September the ship was put in winter quarters for the second time. She was banked up with snow, the deck house was put up for the use of the men, and the awning spread so that the spar deck was completely housed over. Economy and retrenchment were the order of the day in fuel, provisions, and clothing. In the latter part of the month, when the cracks froze over, came the best time for travel, but the outlook was poor. There was comparatively little snow, and what there was was constantly blown by the wind and rendered salt by attrition on the surface of the ice, so that it could not be used for culinary purposes. The captain was very favorable to fall traveling, and he several times expressed himself to the effect

that he would not abandon the ship while there was a pound of provisions left, and it was generally understood that he would hold on a year longer, and probably start when the fall traveling commenced, a year later. It was considered that if the provisions held out long enough, if they were not attacked by scurvy, and if the ship were not crushed by the ice, she would eventually drift out after reaching the vicinity of Franz Josef Land, either north or south of it. The *morale* of the ship's company was excellent, yet all looked anxiously toward the long night of the second winter, which proved to be the most fearful part of their experience. The anxiety and mental strain were the greatest at that time. They were so completely at the mercy of the ice that the vessel might be crushed at any moment by the thundering agencies that were constantly heard.

The old winter routine of meals, two hours' exercise, and so on, commenced on Nov. 1, and all was going well. November and December were extremely cold, but there were no severe gales. The meteorological observations were taken every hour during the first year, but every two hours only, during the second. They were very thorough, and Mr. Collins was very watchful to add something to the science to which he was thoroughly devoted. During the illness of Danenhower, from weak eyes, the captain and Mr. Chipp took the astronomical observations, but each officer in the ship had a round of duty as a weather observer, and to assist Mr. Collins. There was a quartermaster on watch all the time, and steam was kept on the Baxter boiler for distilling purposes. To save coal fires were put out in the galley at 3 P. M., being used only from 7 A. M. till that hour.



LIEUT. CHAS. W. CHIPP.

The month of January, 1881, was remarkable for its changeable temperature, and as being warmer than the two previous months. About the middle of the month the wind set in from the southeast, and subsequently to that time the drift of the ship was uniformly to the northwest. The depth of the water began to increase toward the northwest, but would always decrease toward the southeast or southwest, as well as to the northeast. The vessel seemed to drift in a groove, which they called Melville's Canal, as he was the first to call attention to the fact. Mr. Chipp took the soundings every morning, and by long experience could judge of the drift so accurately that his dead reckoning generally tallied with the observations. He adopted a scale by which slow drift meant three nautical miles per day; moderate, six miles; rapid, nine miles; very rapid, twelve miles. He always reckoned the direction and speed of the drift, and placed the ship before making the observation. His judgment was excellent. He and the captain made frequent lunar observations for chronometer errors, but those of the eclipses of Jupiter's satellites were the best. February was the coldest month; and the mean for the three months was only six degrees lower than that for the same months during the previous year. The soundings generally ran thirty-three, but one morning Mr. Dunbar sounded in forty-four; some called that place Dunbar Hole. They drifted over this spot once again at a later period. The absence of animal life prior to May was greater than during the previous year. All hands hunted every day, especially as the doctor wanted fresh meat for the Indian Alexai, who began to have symptoms of the scurvy, and suffered very greatly from abscesses on his leg. They killed in all two hundred and fifty seals, thirty bears, and six walruses. On May 1 Dr. Ambler reported the physical condition of the crew rapidly deteriorating, and six or seven were placed on whiskey and quinine to tone them up. The weather at this time was good, in an Arctic sense, and there were no spring gales.

The result of the drift for the first five months was forty miles. There was a cycloidal movement of the ice. The drift during the last six months was very rapid. The soundings were pretty even. They were eighteen fathoms near Wrangell Land, which was often visible seventy-

five miles distant. The greatest depth found was eighty fathoms, and the average thirty-five. The bottom was blue mud. Shrimps and plenty of algological specimens were brought up from the bottom. The surface water had a temperature of 20° above zero. The extremes of the temperature of the air were—greatest cold, 58° below zero, and greatest heat 44° above zero. The first winter the mean temperature was 33° below zero. The second winter it was 39° below zero. The first summer the mean temperature was 40° above zero. The heaviest gale showed a velocity of about fifty miles an hour. Such gales were not frequent. Barometric and thermometric fluctuations were not great. There were disturbances of the needle coincident with the auroras. The winter's growth of ice was eight feet. The heaviest ice seen was twenty-three feet. The telephone wires were broken by movement of the ice. The photographic collection was lost with the ship. Lieut. Chipp's 2,000 auroral observations were also lost. The naturalist's notes have been saved.

During the month of May the ice pilot was almost constantly in the crow's-nest, and got blind several times. He was looking out for land, and was the first to announce it in sight, being then by a round estimate about five hundred miles to the northwest of Herald Island, with the ship still beset, and drifting in the pack-ice.

EXTRACTS FROM THE LOG OF THE JEANNETTE.

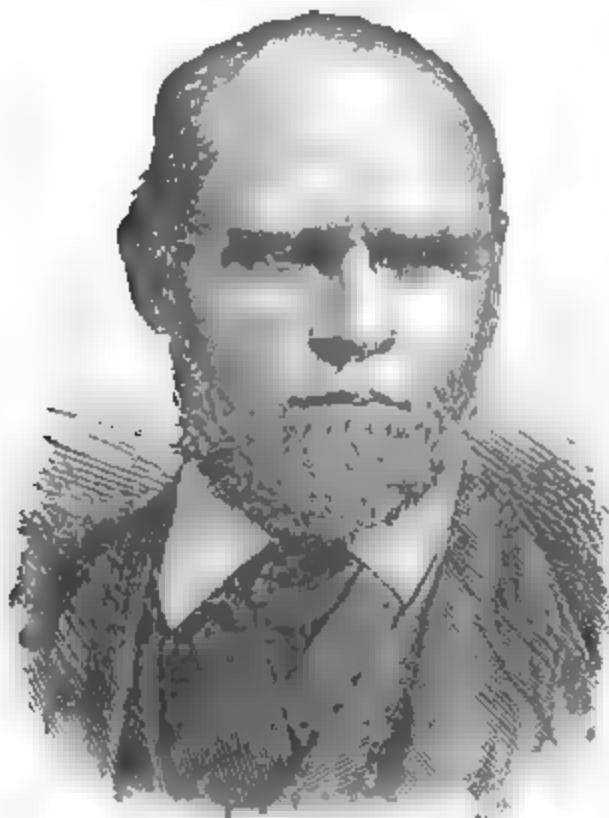
Tuesday, May 17, 1881.—Latitude by observation at noon, north $76^{\circ} 43' 20''$; longitude by chronometer from afternoon observations, east $161^{\circ} 53' 45''$; sounded in forty-three fathoms; muddy bottom; a slight drift northwest being indicated by the lead line; weather dull and gloomy in the forenoon; close, bright, and pleasant, in the afternoon. At 7 P. M. land was sighted from aloft by William Dunbar, ice pilot, and bearing south $78^{\circ} 45'$ west (magnetic) or north $83^{\circ} 15'$ west true. It appears to be an island; but owing to fog hanging partly over it and partly to the northward of it, no certainty is felt that this is all of it. It is also visible from the deck, but no estimate can be made of its distance. As no such land is laid down upon any chart in our possession, belief that

we have made a discovery is permissible. This is the first land of any kind seen by the ship since March 24, 1880, at which date we saw for the last time the north side of "Wrangell Land."

Wednesday, May 18, 1881.—Latitude north $76^{\circ} 43' 38''$, longitude east $161^{\circ} 42' 30''$. The land sighted yesterday remains visible all day, and with greater clearness. The clouds of yesterday, or fog bank, as then called, having disappeared from the upper part of the island, we are able to see apparent rocky cliffs with a snow-covered slope extending back to the westward from them, and terminating in a conical mass like a volcano top.

Thursday, May 19, 1881.—Latitude $76^{\circ} 44' 50''$ north, longitude $161^{\circ} 30' 45''$ east. Crew engaged in digging down through the ice on the port side of the stem in an effort to reach the forefoot. The ice was first bored to a depth of ten feet two inches without getting to the bottom of it; next a hole was dug four feet in depth, and from the bottom of this hole a drilling was made to the depth of ten feet two inches, still not reaching the bottom of the ice at fourteen feet two inches; but water now came oozing

in to fill up the space dug, and further effort was not made. It is fair to assume that the thickness is of more than one floe, and that the water flows in between the blocks as they lie one above the other. An opening occurred in the ice about five hundred yards to the eastward of the ship and partially closed at 10 P. M., the ship receiving several slight shocks as the edges of the ice came together. The island remains in plain view all day, and at times after 6 P. M. a very strong appearance of higher land beyond and to the westward is seen, seemingly connected by a snowy slope with what we have called an island.



WM. M. DUNBAR.

Friday, May 20.—The island remains in plain view all day, though nothing can be seen of the high land beyond, the strong appearance of which is noted in yesterday's log. The center of the island now bears west (true), but as no observations could be obtained to-day, its position and distance cannot be determined by the change of bearing.

Saturday, May 21.—Latitude north $76^{\circ} 52' 22''$, longitude east $161^{\circ} 7' 45''$. The point of the island which on the 16th inst. bore north $83^{\circ} 15'$ west (true) to-day bears south $78^{\circ} 30'$ west (true), from which change of bearing it is computed that the island is now twenty-four and three-fifths miles distant. The position of the observed point is therefore latitude $76^{\circ} 47' 28''$ north, longitude $159^{\circ} 20' 45''$. From measurement made by a sextant it is found that the island as seen to-day subtends an angle of $2^{\circ} 10'$.

Wednesday, May 25.—Latitude north $77^{\circ} 16' 3''$, longitude east $159^{\circ} 33' 30''$. At 8 A. M. the ice was found to have opened in numerous long lanes, some connected and some single, extending generally in north-northwest and south-southeast direction. By making occasional portages boats were able to go several miles from the vessel, but for the ship herself there were no ice openings of sufficient magnitude. The strong appearance of land mentioned on the 12th inst. proves to have been land in fact, and for the reasons similar to those herein set forth (in the remarks of the 17th inst.) it may be recorded as another discovery. The second land is an island of which the position and present distance are yet to be determined. The interval between the two islands is $49^{\circ} 55'$.

Tuesday, May 31.—No observations. Crew engaged in digging a trench round the vessel, and after 4 P. M. in getting up provisions, etc., in readiness for a sledge party directed to leave the ship to-morrow morning.

Wednesday, June 1.—No observations. At 9 A. M. a party, consisting of Passed Assistant Engineer G. W. Melville, Mr. William Dunbar, W. F. C. Ninderman (seaman), H. H. Erickson (seaman), J. H. Bartlett (first class fireman), and Walter Sharwell (coal heaver), started to make an attempt to land upon the island discovered by us on the 25th

ult., and which bears southwest half-west (true) at an estimated distance of twelve miles. They carried with them the light dingy, secured upon a sled drawn by fifteen dogs, and provisions for seven days, beside knapsacks and sleeping bags and arms. All hands assembled on the ice to witness the departure, and cheers were exchanged as the sled moved off. At 6 A. M. the traveling party could be seen from aloft at about five miles distant from the ship.

Thursday, June 2.—Latitude $77^{\circ} 16' 14''$ north. During the forenoon the traveling party was in sight from aloft, seemingly more than half way to the island.

Saturday, June 4.—Latitude $77^{\circ} 12' 55''$ north, longitude $158^{\circ} 11' 45''$ east. From the cracked appearance of the ice around the stern it would seem that the ship is endeavoring to rise from her ice dock. To facilitate her rising and to relieve the strain upon the keel under the propeller, the men were engaged forenoon and afternoon in digging away the ice under the counters, and in the neighborhood of the propeller well. The said ice is of a flinty hardness and clings so closely to the ship as to show the grain of the wood and to tear out the oakum, visible where the ship's rising has left open spaces. Bearings of the island toward which the traveling party was sent:—South end S. 52° west (true). North end S. 61° west (true).

Sunday, June 5.—No observations. At 11 A. M. started a fire on the ice ahead of the ship, adding tar and oakum to make a black smoke as a signal of our location to the absent traveling party. At 4 P. M. the weather being foggy, fired a charge from the brass gun and one from a whale gun as a similar signal. Carpenters pushed repairs to steam cutter.

Monday, June 6.—No observations. At 10 A. M. called all hands to muster and read the act for the government of the navy. The commanding officer then inspected the ship. At 1:30 P. M. divine services were read in the cabin. At 6 A. M. sighted the traveling party making their way back to the ship; sent the starboard watch out to assist them in. At 9 A. M. the sled arrived alongside, drawn by the dogs and accompanied by Ninderman, Erickson, and Bartlett. Mr. William Dun-

bar, ice pilot, was brought in by this party, having been disabled by snow blindness. At twenty minutes of 10 A. M. Engineer Melville and Walter Sharwell, coal heaver, with all remaining traveling gear, arrived on board.

The party landed on the island at half-past 5 P. M., on Friday, June 3, hoisted our national ensign, and took possession of our discoveries in the name of the United States of America. The island discovered on May 17 has been named, and will hereafter be known as Jeannette Island. It is situated in latitude $76^{\circ} 47'$ north, and longitude $158^{\circ} 56'$ east. The island discovered on May 25 and landed upon as above stated, has been named and will hereafter be known as Henrietta Island. It is situated in latitude $77^{\circ} 8'$ north, and longitude $157^{\circ} 43'$ east.

Tuesday, June 7, 1881.—Latitude $77^{\circ} 11' 10''$ north; longitude, no observations. In anticipation of our floe breaking up and our being launched into the confusion raging about us, hoisted the steam cutter, brought aboard the kayaks and oomiaks and removed from the ice such of our belongings as could not be secured at a few moments' notice.

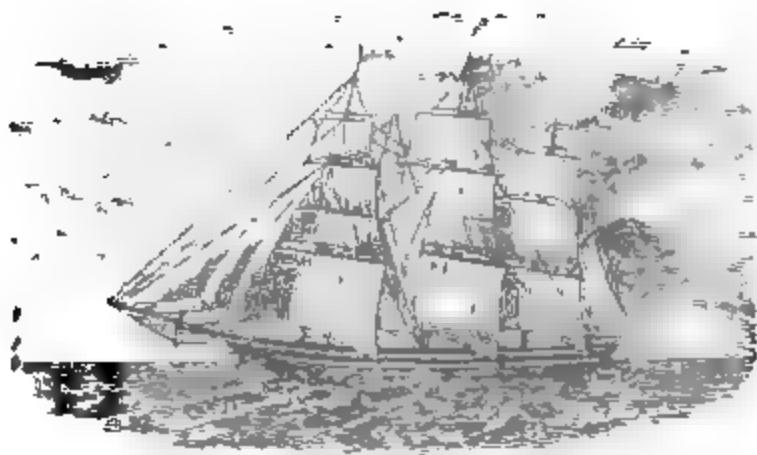
Wednesday, June 8.—No observations. So thick was the fog until 10 A. M. that our position with reference to Henrietta Island could not be determined, but at that hour the fog cleared away, and the island was sighted right ahead, at a distance of about four miles. As indicated yesterday, we were being drifted across the north face. The large openings near us have closed and the general appearance of the ice to the west and northwest is that of an immense field broken up in many places by the large piles of broken floe pieces, but with no water spaces. Considerable water sky is visible to the south and southwest, and several unconnected lanes of water are to be seen in those directions. The ice having passed, the obstruction caused by Henrietta Island has closed up again and resumed its accustomed drift to the northwest.

Friday, June 10.—Latitude $77^{\circ} 14' 20''$ north, longitude $156^{\circ} 7' 30''$ east. At 11 P. M. the ship received several severe jars. At half-past 11 the ice eighty yards to the westward opened to a width of ten feet, and after several shocks from the ice, the ship was found to have risen an inch forward. At midnight there was considerable motion to our sur-

rounding floe, and strong indications of a breaking up of the ice alongside the ship.

Saturday, June 11.—Latitude $77^{\circ} 13' 45''$ north, longitude $155^{\circ} 46' 30''$ east. At ten minutes past 12 A. M. the ice suddenly opened alongside, and the ship righted to an even keel. Called all hands at once and brought on the few remaining things on the ice. The ship settled down to her proper bearings nearly, the draught being 8 feet 11 inches forward, and 12 feet 5 inches aft. A large block of ice could be seen remaining under the keel. At the first alarm the gate in the water-tight bulkhead forward was closed, but the amount of water coming into the ship was found to decrease—a small stream trickling aft being all that could be seen. There being many large spaces of water near us and the ice having a generally broken up appearance, it was concluded to ship the rudder to be ready for an emergency involving the moving of the ship. After some trouble in removing accumulations of ice around the gudgeons the rudder was shipped, and everything cleared away for making sail. As well as could be judged by looking down through the water under the counters there was no injury whatever to the afterbody of the ship. As soon as possible a bow line and a quarter line had been got out and the ship secured temporarily to the ice, which remained on the starboard side, as nearly in the same berth as she could be placed. By looking down through the water alongside the stern on the port side one of the iron straps near her forefoot was seen to be sprung off, but otherwise no damage could be detected. It was assumed by me that the heavy ice which all along bore heavily against the stern had held the plank ends open on the garboards, and that as soon as the ship was able to move from this heavy ice the wood ends came together again, closing much of the opening, and reducing the leak. The water line or rather water level being below the berth deck no difficulty was anticipated in keeping the ship afloat, and navigating her to some port should she ever be liberated from the pack-ice of the Arctic Ocean. Sounded in thirty-three fathoms, bottom mud, rapid drift to north-northwest. This is the last entry in the log, and is in pencil, and with the rest is in the handwriting of De Long.

The ice continued in motion, but no serious injury occurred to the ship until the morning of the 12th, when the ice commenced to pack together, bringing a tremendous strain on the ship, heeling her over to starboard, and forcing the deck seams open. This continued during the day at intervals until evening, when it was evident the ship could not much longer hold together. The boats were lowered on the ice, and provisions, arms, tents, alcohol, sledges, and all necessary equipment for a retreat, securely placed on the floe. By 6 p. m. the ship had entirely filled with water and lay over at an angle of about twenty-two degrees, being kept from sinking by the opposing edges of the floe. On the morning of the 13th of June, about 4 o'clock, the ice opened and the ship went down, with colors flying at the masthead.



CHAPTER LXXXVI.

SECOND VOYAGE OF THE CORWIN — HER OFFICERS — ENTER THE ARCTIC — STRUGGLE TO REACH WRANGELL LAND — CRUISE OF THE RODGERS — COMMANDER BERRY'S LETTER — LANDS ON HERALD ISLAND — BURNING OF THE RODGERS — THE RODGERS PARTY BOARD THE NORTH STAR — THE EIRA AGAIN — THE ALLIANCE.

On the 2d of May, 1881, Capt. Hooper received final instructions for his second voyage, and only awaited some additional stores, including a large supply of pemmican, which was delayed in transmission from the east. These having arrived on the 4th, the Corwin steamed out of the Golden Gate on the afternoon of that day, amid the tumultuous applause and enthusiastic cheers of the spectators, conveyed to sea by the revenue cutters Rush and Hartley.

The following were the officers of the Corwin: C. L. Hooper, captain; W. J. Herring, first lieutenant; E. Burke, second lieutenant; O. B. Myrick, Geo. H. Doty and Wm. E. Reynolds, third lieutenants; Jas. T. Wayson, Chas. A. Laws and Fred. E. Owen, engineer and assistants; and I. C. Rosse, surgeon. The crew consisted of thirty picked men, including an experienced coal miner, whose services were to be utilized in making available the coal mine discovered in 1880, near Cape Lisburne. After parting company with the Rush and Hartley, the Corwin headed north and west for the Aleutian Islands. The weather for the first eight days was delightful; but this auspicious opening of the voyage was soon followed by high winds and hail and snowstorms. As they neared Ounalaska a very heavy sea was encountered, owing in part to the high tides which occur there at that season of the year. At Ounalaska they were received with great cordiality, and took on board a good supply of coal, one year's extra provisions, and the customary fur clothing for officers and men.

Reaching St. Lawrence Island on May 28, they pushed on to the north, and entered the Arctic Ocean on May 30. In latitude $68^{\circ} 10'$ north, by longitude $173^{\circ} 48'$ west, north of Kolyutchin Island, the Corwin had her rudder badly shattered by the ice, and for several days, while it was being repaired, she was steered by means of a jury rudder. Lieuts. Herring and Reynolds, with one seaman and two natives, were landed on the Siberian coast, with instructions to explore the shore as far as Cape Yakan, nearly eight degrees to the west, and one and one-half to the north, a journey of about 300 miles, and with the necessary windings and doublings, likely to prove considerably longer. They were provided with four sledges and twenty-five dogs, a tent, a skin boat, plenty of fur clothing for night and day, and sixty days' food for men and dogs. With high hopes and great courage they proceeded on their melancholy pilgrimage, while the Corwin returned, through much tribulation, June 15, to Plover Bay, on the east coast of Siberia. Here Capt. Hooper got the first tidings of the missing whalers. The captain of the bark Tom Pope reported that some Tchuktchis had boarded the Vigilant at Cape North, or Irkaipie, about longitude 180° , and found the dead bodies of her crew, and vessel stove in and full of water; and that the Mount Wollaston was found in a similar condition eighty miles further to the northwest. On the wreck of the Vigilant were found a telescope, a bomb-gun and some lines. This would be on Lieut. Herring's route, and confirmation might be expected from that quarter.

Accordingly, his party had no sooner reached the mouth of Wan-karem River, about forty miles to the west of where they parted company with the Corwin, than they fell in with a party of Tchuktchis, in whose possession were found a number of articles taken from the wreck. From what could be learned it was thought probable the vessel had been wrecked in 1879. Herring's party finding it impossible to proceed farther to the northwest, retraced their course and pushed east 100 miles to Cape Serdze Kamen, having made a sledge-journey of 140 miles. Meanwhile, the Corwin had returned from her coaling trip to the south, with a rudder taken from the wreck of the Lotila, and picked them up on the 29th of June.

The Corwin continued her cruise, making corrections, verifications and additions, of more or less value to the discoveries and surveys of previous navigators, as found in the charts of the Navy Department; and on the 17th of August was at Point Barrow.

The struggle to reach Wrangell Land was, it appears, very far from being a holiday task. It involved a twelve days' conflict with the ice king, and every foot of the approach had to be won from the long array of packs, floes, and detached masses of ice. The Corwin stood bravely to the task, like a thing of life struggling for a mastery that she seemed conscious of being hard to win. At one moment threatened with destruction, then rising again with almost the human determination of the minds in charge, she made another brave effort; and so worked forward by repeated assaults into open water within half a mile of land. A landing party under command of Lieut. Reynolds now took formal possession, planting the flagstaff in a high cleft, and depositing at its foot a bottle containing the record of the event, and a tin tube containing a copy of the New York *Herald* of March 22, 1881. The river at which they landed Capt. Hooper named Clark River, in honor of Maj. E. W. Clark, chief of the Revenue Marine Bureau, who had evinced an active interest in the welfare of the expedition. The flag was saluted by the cannon of the Corwin, and by three hearty cheers from her company, with answering shouts from the party on land. They sought in vain for traces of the Jeannette, and left for Herald Island, which, however, they were unable to reach, because of the blockading ice. The Corwin pushed to the east, as stated in Capt. Hooper's report, to the relief of the Webster, wrecked on July 3. After coaling in Plover Bay on the 24th, another effort was made to reach Wrangell Land before the end of the month, but they were prevented by storms of wind and snow from getting nearer than twenty miles. During the first week of September they encountered a furious gale, a cold, northerly blast, piercing in its intensity, and by its violence threatening the very existence of the Corwin. The ice-breaker became unmanageable, and was cast aside; and the rudder was but a frail, patched-up substitute for her own, as previously related, and of course not to be relied on in so dangerous an emer-

gency. Most of the ship's oak-sheathing had been torn away by the jagged ice, and taken altogether, she was fortunate in being able to get away without serious disaster. Having on board nine shipwrecked whalers from the Webster, already referred to, and with his own ship somewhat crippled, Capt. Hooper determined to return. Through masses of pack-ice, which threatened to be soon welded together by the new ice, with good seamanship, constant soundings, occasional anchorage to ice-masses, and unremitting watchfulness, they reached Kotzebue Sound, where they got the first glimpse of the sun they had seen in twelve days. Leaving the sound and proceeding through Behring's Strait, she encountered extremely rough weather, and arrived in safety at San Francisco about midnight of Oct. 20, 1881.

The steam-whaler Mary and Helen had been bought of her owners for \$100,000, which, with \$75,000 more, had been appropriated by Congress to the purchase and outfit of a Jeannette relief expedition. She was dry-docked on the 23d of April, 1881, at Mare Island to receive some internal strengthening and an outer sheathing of oak plank, nearly four inches thick. She was carefully inspected by the naval authorities, and pronounced well adapted for the undertaking. Public opinion declared her to be "strong in every part, of about four hundred tons' burden, able to rest upon her center, and be lifted fore and aft, without strain, and would present the greatest resistance to ice-pressure that could be found in any vessel on the Pacific coast." She was renamed in honor of Admiral Rodgers, and was intrusted to the following officers of the navy: Lieut. Robert M. Berry, commander; Master H. S. Waring, executive officer and navigator; Master Charles F. Putnam, H. J. Hunt, and G. M. Storey, ensigns; A. V. Gano, assistant engineer; and W. H. Gilder, who had been with Schwatka, pay-clerk. Passed-Assistant Surgeon D. M. Jones and Assistant Surgeon J. D. Costello, were the medical staff; and the crew consisted of twenty-seven picked volunteers from the navy yards of the United States, who were all fully up to the requirements of the Jeannette relief board.

On the 16th of June, at fifteen minutes past 3, the Rodgers got under way, going out slowly, and passed away from the Golden Gate.

All the officers and crew left in excellent spirits, a band of intrepid men, working together in perfect harmony, all anxious for the success of the expedition, and fully determined to achieve it. Lieut. Berry said in parting, "I shall do all in my power to render the expedition a success, and shall thoroughly explore Wrangell Land. If De Long needs help I shall spare no effort to render him all I can. I feel that the nation and the scientific critics of the world are watching our movements with deep interest, and we shall try to make a record worthy of the nation whose flag we bear."

Commander Berry wrote from Petropaulovski, July 24, 1881:

"The Arctic search steamer Rodgers arrived here on the afternoon of the 19th inst., after a stormy passage. All on board are well. The vessel showed fine sailing qualities, and steamed to better advantage than was anticipated, developing five knots an hour without the assistance of sails. There were only about five days fine weather during the trip, yet we reached our destination in less than an average passage of sailing vessels.

"We found the Alaska Commercial Company's steamer Alexander, Capt. Sandman, in port. Also the Russian steam corvette Sterlock, Commander Deliveron, who stated that he had received orders from his government to aid the Rodgers as much as possible, also to enter Behring's Strait and the Arctic seas in summer, and search for the Jeannette. He tendered us as much as we desired of five hundred tons of coal now in Plover Bay, and said he would meet us at Serdze Kamen and send a dispatch to the United States from the nearest telegraph station in Asia in the latter part of September. We have secured forty-seven fine dogs, and a large quantity of fur-clothing, probably sufficient for the entire cruise. The Rodgers sails to-day *via* St. Michael's, Plover Bay and St. Lawrence Island for Serdze Kamen, Herald Island and Wrangell Land, where we expect to arrive toward the last of August."

The Rodgers, after leaving St. Lawrence Bay and passing through Behring's Strait, effected a landing on Herald Island on Aug. 24. No traces of the Jeannette were seen at the northwestern extremity of the

island, and the Rodgers left its own record of visitation on the crest of the cliff. The next day the Rodgers steamed for Wrangell Land, and after passing through a dozen miles of loose ice, effected a landing on its southern side. In the evening of the next day they entered a fine harbor where the vessel could remain with safety, while expeditions were sent off to explore the interior and the eastern and western coasts to look for cairns or traces of the Jeannette. Capt. Berry commanded the land party, accompanied by Dr. M. D. Jones and four men. They reached a mountain 2,500 feet high, from which they saw open water around the island everywhere, except between the west and southwest, where a high range of mountains seemed to terminate the land. Master S. H. Waring went around the eastern coast and northern side, until blocked by ice, which was packed in by the northerly wind. He had to abandon his boat and make his way overland to the ship. Ensign Hunt went by the western coast and reached the ice that blocked Waring, finding it impossible to penetrate it. He had passed most of the northern point of the island and could see Waring's position, so that the entire island has been skirted, and its insular character fully established. Though the ship could not possibly sail or steam around Wrangell Land, her commander proved, by his officers in boats, that it is an island, and inferentially that the Jeannette had an opportunity of going northwest toward the Pole, and that the chances of De Long's success and of his returning in safety, freighted with invaluable information, were brighter than ever.

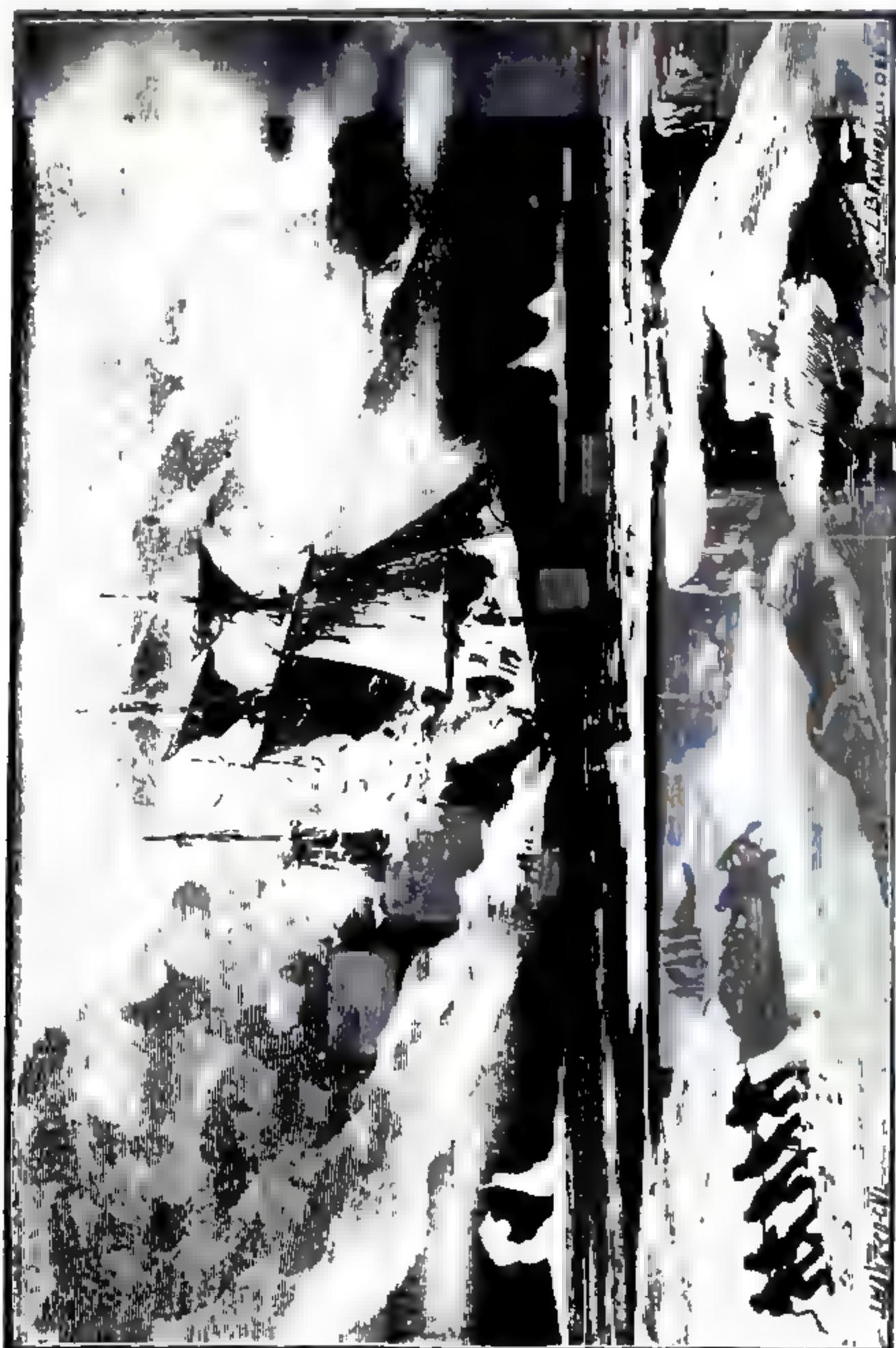
No traces of the Jeannette were found, nor any traces that any human being had ever been there, except the record left by the Corwin on Aug. 12. The harbor where the Rodgers last anchored for this land exploration was in longitude $178^{\circ} 10'$ west, latitude $70^{\circ} 57'$ north, south and west of Hooper's Landing, at Clark River. Ensign Hunt's party were provided with fifteen days' provisions and instructed to encircle the island, if possible, for he felt pretty certain of its insular character, since making our observations from Herald Island of the variable change of currents and ice, which shows this to be a remarkable season in the Arctic.

The detailed narrative, or log, of the cruise of the Rodgers registers the efforts of her officers and crew to make in boats an unbroken tour around what may now be properly termed Wrangell Island, as in every sense highly creditable to this relief ship expedition. There was no prolonged suffering. There was little cold and hunger, but the pluck of the officers and men on the entire voyage will doubtless be read with admiration by Americans everywhere. On Sept. 19 the Rodgers reached latitude $73^{\circ} 44'$ north, the highest point attained by an exploring vessel in those seas. Observations with the deep sea lead, which were made hourly after entering this sea, seemed to indicate a receding from rather than an approach to land as they went north. The water continually deepened as they advanced, until at the highest point $73^{\circ} 44'$ north latitude, $171^{\circ} 48'$ west longitude, it was found to be eighty-two fathoms. The character of the bottom was very irregular—sometimes hard, at others black sand, and in many places blue mud, which was at the deepest soundings.

Lieut. Berry reported that he had found no traces of the Jeannette's people on Herald Island; that he had tried in vain to find suitable winter quarters on the Siberian coast; had erected a depot on an island twenty miles west of Serdze Kamen, which he had put in charge of Master Putnam, with Dr. Jones, Mr. Gilder and three others, and arrived with the Rodgers, on Oct. 15, in St. Lawrence Bay, where she was to winter.

Lieut. Berry, accompanied by Ensign Hunt, left the Rodgers on the 23d of December, to sledge the Siberian coast in quest of possible news of the Jeannette in that quarter. Master Waring was left in command of the vessel in St. Lawrence Bay. The next heard of her was through a telegram sent from the interior of Siberia by Mr. Gilder, of the ship's company, who had made his way from the Tchuktchi village of Tiapka, about midway between Nordenskiöld's winter haven and Cape Serdze Kamen to Werchoyansk on the Yana, in about latitude 68° by longitude 134° east, where he arrived on the 28th of March. The startling intelligence was that "the steamer Rodgers was burned on the 1st of January, 1882; Master Waring and the crew are at Tiapka, where they get food enough from the Tchuktchis. The ispravnik (Russian local governor) of the Kolymsk district had sent tobacco and tea to them for pur-

PRINTING OF THE BUDORNE



poses of barter with the natives. They needed nothing else. Three months' provisions were saved from the ship. Tiapka is near Cape Serdze Kamen."

Mr. Gilder, with commendable energy, had made a long and wearisome journey to bear this news to the confines of civilization. He arrived at Sredni, that is, Middle, Kolymsk, on the Kolyma, about one hundred and fifty miles from its mouth, early in March. The way from Tiapka is well known to the natives, being their regular trading or caravan route, but was none the less arduous and dangerous in mid-winter, a season of the year when even the hardy natives seldom traverse it. Having arrived at Kolymsk, the ispravnik accompanied him to the southwest; and the news of the disaster soon flashed to the ends of the earth. The following details were afterward ascertained:

On the 22d of April the Corwin had been ordered forward to St. Lawrence Bay to the rescue of the crew of the Rodgers, and had reached the ground soon after they got safely aboard the North Star.

Master Waring intrusted to the natives at Plover and Marcus Bays, letters to be delivered to any whaling vessels which might visit these places, informing them of the condition of the shipwrecked crew. Capt. Owens, of the steam whaler North Star, of New Bedford, got one of these letters, and forced his ship through ice opposite St. Lawrence Bay, reaching there on May 8. On the afternoon of the 14th the Rodgers party safely boarded the North Star. Before leaving, Mr. Waring issued to the natives all the unexpended trade goods, provisions, rifles, ammunition and boots as recompense for their kind treatment, and the recompense was eminently satisfactory to these harmless creatures, so that should a party of wrecked mariners ever again be cast away in that vicinity, they can rest assured of a good reception. The officials and men all unite in speaking of the generosity and trouble taken by Capt. Owens in effecting their rescue. Previous to their being transferred to the Corwin he offered to land them either at Fort St. Michael's, Alaska, or San Francisco. On the night of the 14th the Corwin put in an appearance, and all hands were immediately transferred to her and taken to Sitka, where they arrived on the 3d of June, and thence to San Francisco.

THE EIRA AGAIN TO THE RESCUE.

On the 13th of June, 1881, W. Leigh Smith set out again for the north in his steam yacht Eira, in the hope of being of service to the Jeannette. He was accompanied by Dr. Neale, Capt. Lofley and a crew of twenty-two men, the vessel being fully provisioned for fourteen months, with a flour and bread supply for two years. On the 13th of July they were steaming through pack-ice, and on the 23d sighted Franz-Josef Land. Proceeding toward Cape Ludlow, close to the pack to the northward, they entered Nightingale Sound on the 2d of August, and arriving at Eira Harbor, erected a storehouse. On the 16th they proceeded eastward in search of the Jeannette, but were unable to pass Barenz Hook because of the ice in that quarter. On the 21st the Eira got nipped between a land-floe and pack-ice, a mile to the east of Cape Flora, and the leak gained so rapidly that in two hours after it had been discovered it was necessary to abandon the ship. Hardly had the last man left her when the ice eased, and she sank quickly, before they were able to save much of their stores. All the boats were saved; and most of the men saved some clothing and bedding. A tent was at once erected on the ice, and for sixteen nights they slept in it, and were at times almost floated out by rain. Meanwhile, they constructed a hut of stone and turf at the Cape and covered it with sails. Here they wintered in safety from September 7, 1881, to June 21, 1882, and during the whole period were happily free from scurvy, having plenty of fresh meat. Thirty-six bears and twenty-nine walruses were killed and eaten. On June 21, 1882, they left Cape Flora in four boats, and sailed eighty miles without seeing any ice, but soon had enough of it, arriving, however, in safety, at Nova Zembla on the 2d of August.

Meanwhile, the steam-whaler, Hope, under Sir Allen Young, was dispatched from England in June, 1882, to the rescue of the Eira, the expense being defrayed by the family of the missing navigator, with contributions of \$5,000. from the Royal Geographical Society, and \$25,000 from the Government. Sir Henry Gore Booth and W. G. A. Grant, the amateur Arctic photographer, who had accompanied Mr. Smith in his

cruise of 1880, fitted out the small vessel Kara to prosecute an independent search. The Dutch exploring schooner, William Barentz, also went into the work of search—under direction of the Government; and Nordenskiöld's merchant patron, Dr. Oscar Dickson, stimulated the Scandinavian walrus hunters to active participation in the search by the offer of liberal rewards for news of the Eira, or any help to vessel or crew. The Hope had a stormy voyage to the north, encountering high winds, ice and fog, but arrived in safety at Karmahuld, Nova Zembla, on



PARLIAMENT HOUSE AT REIKIAVIK.

the 19th of July. The Kara was lying in the same harbor. On the 3d of August the Hope fell in with the boats of the Eira, in Matotschkin Schar, Nova Zembla; and the whole party arrived safely at Peterhead on the 19th of August.

THE VOYAGE OF THE ALLIANCE.

The United States steamer Alliance, in command of Capt. Wadleigh, left Norfolk, Va., June 16, 1881, for the rescue of the Jeannette. She proceeded to Newfoundland, and thence to Reikiavik, Iceland, being the first vessel of the United States navy to visit that port. She was of course received with effusive cordiality by the Icelanders, who entertain a very special regard for the Great Republic. Reikiavik is situated in

latitude $64^{\circ} 8' 40''$, and west longitude $21^{\circ} 50'$, and is the capital of the island. The population, however, is only about 1,500, but its political pre-eminence as the seat of government makes it a more important town than the number of its inhabitants would seem to indicate. It is also a bishop's see, with ecclesiastical, medical and general colleges, an observatory, and public library. It is quite an old place, having been founded in 874, and is in some respects one of the most interesting places in the world. The history and character of the inhabitants are as remarkable as the physical characteristics of the land they live in. But their American visitors had no opportunity to indulge in sentimental intercourse, being anxious to push forward to the help of the Jeannette. Leaving their Icelandic friends, they set sail for Hammerfest, in Norway, where they adjusted to the cross-trees of the Alliance the well known Arctic contrivance, the crow's-nest, a tub about five feet deep, to protect the lookout from the cold blasts of the north, while perched aloft on the watch for icebergs, leads, floes, and whatever else may heave in sight. Losing no time at any point, as there was much to be done, and but a short season in which to do it, the Alliance now steamed away into the desolate regions of the north toward Spitzbergen, going as high as $80^{\circ} 10' 55''$, but of course found no traces of the Jeannette, which was nearly half the circle to the east of them.

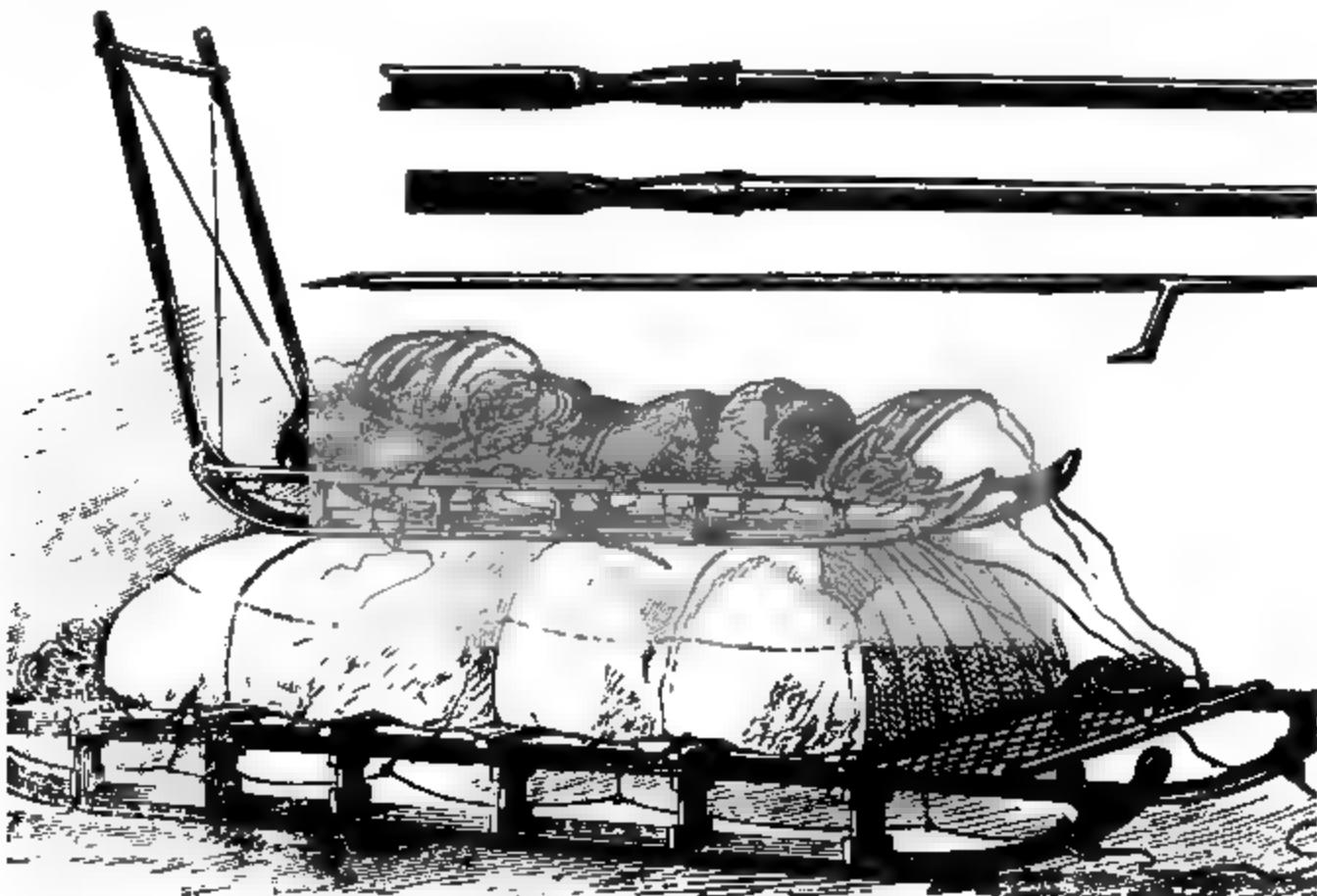
Four months out from Norfolk, and having already made her first vain tour of observation and re-coaled at Hammerfest, the Alliance was again headed north, on the 16th of September, for a second trip. On the 23d she found herself inclosed in an ice-pocket or *cul-de-sac*, and in imminent danger of being beset for the winter in the midst of the sea, if not crushed by the pack-ice. Slowly steaming northward by the way they had entered, with the commander in the crow's-nest, anxiously peering through the haze for the ever-changing openings or leads in the floe, while issuing his orders to the officer in charge below, they had the good fortune to thread their way out of the labyrinth. As it was now late in the season, and the chance of being of service to the missing ship very slim, Captain Wadleigh now judged it prudent to return, and arrived home in safety toward the close of October.

CHAPTER LXXXVII.

THE JEANNETTE DISAPPEARS FROM SIGHT — A PLAN OF ESCAPE — PARTIES DETAILED — HARDSHIPS — MAKING FOR THE LAND — CAPE EMMA — THE THREE BOAT-LOADS — THADDEUS ISLAND — THE ADVENTURE OF CHIPP AND KUEHNE — A DEER-HUNT — DANENHOWER'S LAST TALK WITH CHIPP — NO OTHER BOATS IN SIGHT.

The last direct reference to the voyage of the Jeannette closed with the loss of the vessel. She sank about 4 A. M. of June 13, 1881, in latitude $76^{\circ} 15'$ and longitude $156^{\circ} 20'$ east—in round numbers, about 150 miles northeast of the New Siberian Islands, 300 from the nearest point of the Siberian coast, the headlands west of the Indigirka River, and nearly 600 in a direct line to the delta of the Lena. Seaman Kuehne and Fireman Bartlett—the one going on and the other off watch—were the only persons who actually saw her disappear. Daylight found her company encamped on the ice about 400 yards from where she went down. Here they remained six days, since taking their last meal aboard the doomed ship on the evening of the 11th, organizing a system of travel, determining the direction to take, and awaiting improvement in the health of about one-fourth their number, who were suffering from stomach disorders, supposed to have been occasioned by tin-poisoning from tomato cans. But the time was not wasted, the well being kept busy in distributing and packing goods in the sleds and boats. They had saved eight sledges of all kinds, three boats—first and second cutter, and one whale-boat; six tents; about 3,500 pounds of pemmican in forty-five pound canisters, 1,500 pounds of hard bread, rather more tea than they were likely to need, and a considerable quantity of Liebig's Extract—an important element in their diet. There was also some canned turkey and chicken, but these were disposed of in their first encampment. They

had a liberal supply of alcohol for fuel, and a good stock of rifles and ammunition. The aggregate weight of the five loaded sleds was 6,600 pounds; the sixth was used as a hospital sledge. The three boats were mounted on ship-made sleds, each of which consisted of two heavy oak runners, about twelve inches high, and shod with whalebone, and twelve feet in length, with eight or ten cross-pieces made from the staves of whiskey barrels. The weights of the first and second cutter and whale-boat, with the sled and outfit of each, were respectively, 3,000, 2,300 and



ARCTIC SLEDGE.

2,500 pounds—a grand total of 15,400 pounds, with but twenty-two men in condition to work, or 700 pounds to each man. The dogs were harnessed to two light Arctic sledges loaded with a large amount of other stores in excess of those more permanently stowed in the five sleds, as already mentioned. In the boats each man had a knapsack, containing one change of underclothing, one package of matches, an extra pair of snow-goggles, a spare pair of moccasins, and a plug of navy tobacco.

On the 16th Commander De Long issued an order, arranging details with a view to insuring as much method as possible, distributing the offi-

cers and men in five tents, the sixth being used for an office tent, and directing that the traveling be done by night, from 6:30 P. M. to 6 A. M., to avoid the intense daylight, and thus lessen the risk of snow-blindness. The tents were only nine by six feet, and required close stowage for six or seven men. Each tent had a fire-pot, a heavy galvanized iron kettle, in which a copper kettle was suspended, having under it an alcohol lamp with a circular asbestos wick ten inches in diameter, and on top a stew-pan. A cook was detailed for each tent with an assistant to melt snow and draw rations. The sleeping accommodations were a Mackintosh rubber blanket of the size of the floor, and the usual Arctic sleeping bags of fur, covered with hairless sealskin. Each boat had the required number of oars, a box of tools, and the articles needed for repairs, and the arms and ammunition, as they had been apportioned. Having burdened themselves so heavily, the rate of progress was necessarily very slow. The ice pilot went ahead to select the best route, and at intervals planted a black flag. To the points thus indicated all the working force, except four, hauled the first cutter, the second, the whale-boat and the five loaded sledges as rapidly as possible, while the special detail of four brought up the dog-sledges and the hospital sledge.

On the 17th of June, at 6 P. M., they set out for the south, having meanwhile begun to drift to the northwest. Lieut. Danenhower, who had long been disabled through sore eyes, was only able to do light duty, and Lieut. Chipp had not fully recovered from the effects of the tin-poisoning. So the active superintendence of the working force devolved on Engineer Melville under the directions of the commander. Each officer and man was supplied with a working harness similar to those used by Parry and others. Hitherto all had been preparation, but now the downright hard work began, and the true nature of the task before them was soon vividly realized. The snow was knee-deep, the road very rough, and the ice full of fissures. Through the slight crust of the snow their feet sank easily, making even unincumbered traveling very wearisome. Over hummocks and huge blocks of ice, "that would have taken a whole corps of engineers to level," they had to haul the heavily loaded boats and sledges, while to cross the more narrow fissures they had to

work up a special spurt and jump them. In three hours they had taken the cutter to the second black flag—a distance of only a mile and a half. By 6 o'clock in the morning of the 18th, after the hardest twelve hours' work that any of them had ever performed, they had only succeeded in advancing the second cutter three-quarters of a mile, with the whale-boat 100 yards in the rear, and several of the sledges, more or less disabled, at intervals along the road, and the balance of their stock still in the original camp. Lieut. Chipp, in an effort to advance the hospital sledge, drawn by seven dogs, fainted from exhaustion, and was only restored by the help of Dr. Ambler.

Two days were now spent in repairing damages, and bringing up the rear. On the 19th Danenhower was ordered to the hospital sledge, the commander doubtless being apprehensive of the danger of his falling into some fissure if allowed to go with the advance party. Apart from his partial blindness he was one of the strongest of the party, and anxious to be of service in the heavy work, which now fell on twenty-one men out of the thirty-three. On the 20th they again pushed to the south

in the same slow way, making one mile of advance while they traveled thirteen—seven times forward with boats and sledges, and six times backward without loads. On the 24th, after a week's progress of this sort, the commander found that they had drifted to the northwest with the floe, twenty-seven miles!

In crossing the wider fissures or lanes of water, sometimes a hundred yards wide, they got everything on to a loose block or cake of ice, which they proceeded to use as a rough ferry-boat. When still wider the boats were dismounted and rowed across, loaded with the sledges and stores.



DR. J. M. AMBLER.

The sick meanwhile became convalescent, and Chipp was soon able to lend very efficient aid, especially in superintending the ferrying business. Danenhower was still kept well in the rear, and carefully watched by Melville, who repeatedly helped him out of fissures into which he had stumbled. With one eye bandaged and the other protected by colored glass he frequently miscalculated distances, and falling short of the opposite bank, would fall in. Altogether, it was a dreadful retreat; so slow, so discouraging, with about a fourth of the company able to give little or no assistance in the heavy work, which was thus rendered a more intolerable strain on the energies of the working force.

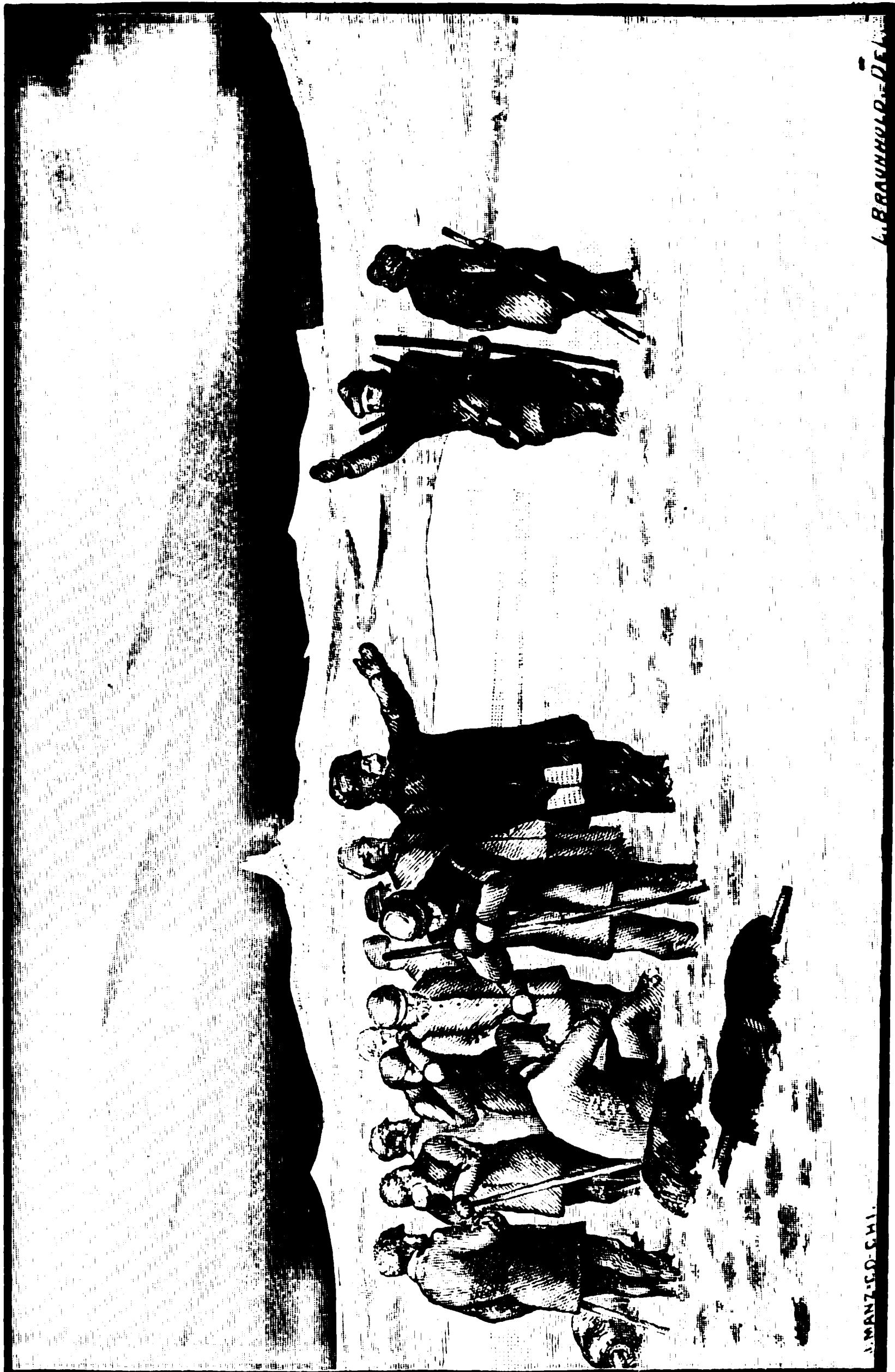
In the latter part of June the snow had all melted, and traveling became better, but they had to wade through pools of this thaw-water, and their feet were almost constantly wet. They were now able to advance two sleds at a time; but had frequently to jump with them from piece to piece in crossing leads. Still, the reduction from thirteen to seven trips was a great gain, and their progress was about twice as rapid. Their course had meanwhile been changed to 17 degrees west of due south, and while moving in this direction, on the 12th of July, they began to perceive indications of land ahead. At the same time they could notice a heavy "water-sky" to the south and southeast, showing the existence of extensive bodies of open water at those points, while in the direction they were following, the ice became more broken, and a more active movement had set in, making travel across it more difficult and dangerous. A week later it took twelve hours to advance a thousand yards over this mass of broken pieces, which unfortunately were not separated enough to permit the floating of the boats, while not close enough to allow anything but the most fragmentary and spasmodic sledging. At times they were forced to desist from all effort to advance, so utterly impracticable was the road.

Still slowly making toward the land, which daily grew more distinct, they were soon able to note some of its glaciers, mountain ranges, and water courses, and could no longer doubt that they had discovered a new island. On the 24th they were within two miles of land, but so utterly exhausted that they were forced to encamp on the ice. On re-

DEPIANTINO OF NINDUMMAN AND NOROA.

In BRAUNHORN, D. & C. J.

J. MANT. CO. CHI.



suming their labors they found that the drift had taken them three miles out of their course. They had spent four days skirting its eastern coast without being able to effect a landing, when, on the 29th of July, the fog lifted, and they beheld themselves in close proximity to the precipitous shore, toward which the current had driven them. Along the shore a fringe of ground ice, narrow, rugged and broken, made the landing difficult. Getting all their goods on one floe-piece, they made a great effort to float it to the shore-ice, but it drifted off before all could be landed. By 7 P. M., however, all the men and stock were collected in one spot, when De Long unfurled the silken flag presented by his wife, took formal possession for the United States, and named it Bennett Island, in honor of the patron of the expedition. The southeast point, in $70^{\circ} 38'$ by $148^{\circ} 20'$ east, was named Cape Emma, in honor of Mrs. De Long. There were millions of wild fowls on the cliffs, and in a few hours the men knocked down several hundred, which were divided among all hands. Driftwood was gathered, to save alcohol; and they went into camp for a week to repair, recuperate, and explore. They divided into small parties to examine the island, and collect geological, mineral and other specimens, while the carpenters were busy effecting repairs on the boats and sledges.

They left Bennett Island on the 6th of August, by the three boats, with a fair prospect of making good progress through the water-lanes between the floes. The distribution of the officers and men in the three boats, and the description of the boats themselves, is here subjoined:—First cutter, Lieut. Geo. W. De Long, Dr. James M. Ambler, Jerome J. Collins, William C. F. Ninderman, Louis J. Noros, Hans H. Erickson, Henry H. Kaach, Adolf Dressler, Carl A. Gantz, Walter Lee, Neils Iverson, George H. Boyd, Ali Sam, and Alexai—fourteen persons. Extreme length of the boat, 20 ft. 4 in.; breadth, 6 ft.; depth, 2 ft. 2 in. from top of gunwale to the top of keel; clinker built, copper fastened, inside lining; drew 28 inches loaded, and had the greatest carrying capacity of the three; fitted with mast, and one shifting lug sail; pulled six oars, and was an excellent sea boat. She had a heavy oak keel piece to strengthen her in hauling over ice, and it was retained on reaching water.

In the second cutter were Lieut. Charles W. Chipp, ice pilot, Wm. Dunbar, Alfred Sweetman, Henry D. Warren, Peter E. Johnson, Edward Star, W. Sharwell, Albert G. Kuehne—eight persons. Extreme length of the boat, 16 ft. 3 in.; breadth, 5 ft. 1 in.; depth, 2 ft. 6 in., from top of gunwale to top of keel; clinker built, copper fastened, a very bad sea-boat; had one dipping lug sail and four oars. She had not sufficient carrying capacity for Chipp's allowance of provisions, so the captain had two extra tins of pemmican in his boat when they separated.

In the whale-boat were Engineer Geo. W. Melville, Lieut. J. W. Danenhower, William Cole, James H. Bartlett, Raymond L. Newcomb, Herbert W. Leach, George Lauderbach, Henry Wilson, Frank Manson, Long Sing and Aniguin—eleven persons. Extreme length of boat, 25 ft. 4 in.; breadth, 5 ft. 6 in.; depth, 2 ft. 2 in. from top of gunwale to top of keel; clinker built, copper fastened, drawing about twenty-four inches when loaded, this being caused by the heavy oak keel piece, similar to those of the first and second cutters. She had one mast and one dipping lug sail. The master boat-builder at Mare Island said she was one of the best fastened boats that he had ever seen, and experience proved it, for the racket she stood on the journey over the ice was almost incredible.

Of their original stock of dogs some had died of starvation, and others had been killed by their fellows. There were about twenty-three left, and eleven of the poorest of them were now killed, the remaining twelve, enough for one strong team, being taken aboard the boats. Ten of these soon disappeared, jumping on the passing floes in pursuit of game, and were left behind by the boats.

From the 6th to the 20th of August they advanced at a fair rate between the floes, sometimes making ten miles a day. They would have made much greater progress, had the water-lanes always opened to the southwest; as it was, they were frequently obliged to haul the boats out of one lane, make a portage over the floe, and again launch them, only to soon repeat the same process. On the 20th the second cutter got jammed among a number of floe-pieces that were suddenly driven together, and they had to make a portage of about a mile to get her afloat again in the wake of the other two. Sometimes a passage was obtained

only by prying the floe-pieces apart; but these would often spring back, and cut off the advance of the second or third boat. It was hard work, but not quite so hard and discouraging as dragging boats and sleds over hummocky ice. The final result of the apparently slight detention of the second cutter was quite serious. The twenty-five men of the other boats encamped on the ice while waiting several hours for Lieut. Chipp and his companions. The wind shifted, and during the ensuing night the ice got so jammed around them that the only movement made for the next ten days was such as was due to the drifting of the whole. This,

however, brought them to the north coast of the middle one of the three principal islands forming the New Siberian group, known as Thaddeus or Faddeyev Island. They landed on the south side of the island on the 31st, after having with difficulty made their way south through the ice-blocked sound which separates it on the east from the island which gives its name to the group. The period of detention was utilized in making repairs, and dividing the provisions between the boats in the ratio of the number of men in each.

RAYMOND L. NEWCOMB.

A black and white portrait of a man with dark hair and a mustache, wearing a dark jacket and a light-colored shirt. He is looking slightly to the left of the camera.

They found the island composed of mud hills that were wearing away rapidly, and forming shoals off the land. Beyond the low hills there was a wet, mossy tundra, upon which they camped for the night. All hands were then sent out hunting. Reindeer tracks and traces were numerous, but no live animals were seen. Bartlett reported that he found footprints in the sand made by a civilized boot. The steward found a hut about two miles west of the camp and a small piece of black bread, as well as a small tusk and a knee piece for a boat fashioned from a deer horn. The next morning they proceeded west along the shore,

the water being very shoal, of which remains of several huts and quantities of driftwood were seen; also large numbers of ducks and wild fowls. Newcomb succeeded in getting about six brace, which were very welcome. That night they tried to land, but after several ineffectual efforts gave up the attempt, as the water was too shoal for the boats.

It was now determined to work along the shoal which divides Thaddeus Island from the third of the group to the west, known as Koltenoi Island. There was a moderate wind from the eastward, and the captain tried to keep close in about four feet of water. The result was that the first cutter was constantly grounding and then laboriously getting off again. They continued on their course to the southward, the captain's boat getting in breakers at one time and calling for the whale-boat to pull him out. There was not much ice at the time, and it was decreasing. One day, about noon, they ran through a line of drift ice, and the whale-boat struck on a tongue that was under water. She began to fill rapidly, and had to be hauled out, but not before she was two-thirds full, could they reach a suitable ice piece. The plug had been knocked out, but she had sustained no other damage. Another time a heavy green sea swept over the whole port side and filled her to the thwarts; she staggered and commenced to settle, but every man with a baler in hand quickly relieved her, and she floated again.

Chipp's boat was as usual astern and in the water-hole, and the others became anxious about his safety. The cutter hauled up about 7 P. M., and camped with the whale-boat. The next day the gale was still blowing, and Chipp's boat still missing, so about 6 P. M. the commander hoisted a black flag. On the following day Bartlett reported that the ice was closing around, and that if they did not move they would be shut in. Two hours afterward all outlets were closed. Land was also in sight at this time, being Koltenoi Island. Erickson was the first to see Chipp's boat, and presently two men were seen making their way over the floe, and jumping across the obstructions. It was Chipp, with Kuehne. His boat had been nearly swamped, and in a sinking condition; he had reached a piece of ice, and managed to haul up. Starr was the only man with his boat at that time who could walk, the others requiring ten or

fifteen minutes to get up circulation in their benumbed limbs. The captain had previously given written orders that in case of separation each boat should make the best of its way to Lena River, but he had recommended touching at Koltenoi Island. Chipp had fortunately decided to follow these instructions, because he had not his allowance of food. All had been on half rations for some time. Chipp had remained on the ice about twenty-four hours, and then got a chance to get under way. He said that by making a portage of about two miles the others could launch their boats and fetch the land. He sent his men to assist, and after six or eight hours of terrible work they succeeded in getting the boats to the second cutter. That night they reached the southeast corner of Koltenoi Island and camped in a low cape extending well out from the mountain, and forming a beautiful bay. This was Sept. 6. They staid there about thirty-six hours. Large parties were sent out hunting, as numerous deer tracks had been seen. Next morning they got under way again and worked along shore until about noon, when they had to make a long and laborious portage, during which Mr. Dunbar fell down exhausted, and with palpitation of the heart. They continued until midnight, and then camped on a bleak, desolate spot. Next morning, Sept. 7, they shaped a course for the island of Stolbovoi from the south point of Koltenoi, fifty-one miles distant to the southwest, and on the meridian of the Yana River. They had fresh breezes the first day, and during the night got into a very bad place and came very near being smashed up by drift ice. They passed in sight of Stolbovoi; but it was not considered worth while to land on the barren island, which was, besides, too distant.

On the night of Sept. 9 they hauled up on a piece of ice off the north end of Semenovskoi Island, and there slept. On Sept. 10 they rounded the north end of this island and came down the west shore, stopping to cook dinner, and to examine the island. They killed a deer, and remained there thirty-six hours. That evening Chipp came over and asked Danenhower to go out with him to get some ptarmigan, if possible. They came upon a large covey, but could not get a shot. This was Danenhower's last talk with Chipp. He was in better health than usual and was cheerful, but not altogether satisfied with the

outlook. On Monday morning, Sept. 12, they left Semenovskoi Island and stood to the southward, along the west side of the island, lying to the south. About half-past 11 A. M. they ran through a lot of drift ice. It was the last piece of ice that they saw. They then started on a southwest course. The captain kept his boat almost right before the wind; and as the whale-boat was the faster sailor it was hard to keep her in position. The orders were to keep astern of the captain, within easy hail, and for Chipp to bring up the rear, he being the second in command. The wind and sea increased very rapidly, and about 5 P. M. the whale-boat was out of position about 900 yards off the weather quarter of the first cutter. Melville then told Danenhower to take charge of the whale-boat. On the morning of the 13th no boats were in sight.



CHAPTER LXXXVIII.

DE LONG'S CUTTER REACHES THE COAST — HIS DIARY OF MISFORTUNES — ALEXAI SEES A HUT — ONLY A MOUND — THE DOG FOR SUPPER — ERICKSEN'S HANDS FROZEN — FRIED DOG MEAT — THIRD-HAND TEA — DEPARTING OF NINDERMAN AND NOROS — THE FORTUNES OF THE WHALE-BOAT'S CREW — HOSPITALITY OF AN EXILE — LOSS OF CHIPP — DE LONG'S DIARY CLOSES — DEATH OF MOST OF THE PARTY — DANENHOWER'S STORY.

The first cutter under immediate command of De Long, reached the Siberian coast on the 16th of September, but could not reach the shore by boat, being compelled to wade waist-high through freezing water and broken ice. It took the whole day to get their things ashore, all the company being worn out and frost-bitten, Ninderman and Noros only, being in anything like working condition. Unfortunately they struck one of the most northern, remote, and desolate of the mouths of the Lena. It seems a strange fatality that first inspired De Long with the idea of making for the Lena. One can see of course, that the effort was to reach Iakoutsk by their boats through that navigable stream before it would get frozen over for the winter. Still, one can hardly forbear reflecting on "what might have been" had they pushed directly for the Siberian coast. In half the three months they had consumed in making the trip by way of the New Siberian Islands, they would have reached the mouth of the Indigirka, and the village of Schewelewo, just above its delta. Again, had they on leaving Semenovskoi Island struck due south, they would have reached the Yana River, with the town of Ustyansk a little way above its delta, about two hundred miles from the sea. Entering the Lena, about eight hundred miles would have to be traversed by land or water before reaching Bulun, the first point of any importance. They traveled four days, and the Indian Alexai having

succeeded in killing two deer, the fourteen men and two dogs fared sumptuously. Four days more brought them to the extremity of a peninsula, and it was decided to pass over the river to the western side. While waiting for the river to freeze, Alexai killed a deer on the 30th, and they were again able to get momentary relief. On Oct. 1st, they crossed the mouth, or fork, along which they had traveled, to the west side, five hundred yards, on new ice. Lieut. De Long left this account:

" Saturday, Oct. 1.—One hundred and eleventh day [from the abandonment of the Jeannette], and a new month. Called all hands as soon as the cook announced boiling water, and at 6:45 had our breakfast, half a pound of deer meat, and tea. Sent Ninderman and Alexai to examine the main river, other men to collect wood. The doctor resumed the cutting away of poor Erickson's toes this morning. No doubt it will have to continue until his feet are gone, unless death ensues, or we get to some settlement. Only one toe left now. Weather clear, light northeast airs, barometer 30.15 at 6:05. The temperature 18° at 7:30. Ninderman and Alexai were seen to have crossed, and I immediately sent men to carry our load over. Left the following record:

" Saturday, Oct. 1, 1881.—Fourteen of the officers and men of the United States Arctic steamer Jeannette reached this hut on Wednesday, Sept. 28, and, having been forced to wait for the river to freeze over, are proceeding to cross to the west side this morning on their journey to reach some settlement on the Lena River. We have two days' provisions, but having been fortunate enough thus far to get game in our pressing needs, we have no fear for the future.



GEO. W. MELVILLE.

"Our party are all well except one man, Erickson, whose toes have been amputated in consequence of frost-bite. Other records will be found in several huts on the east side of this river, along which we have come from the north.

"At 8:30 made the final trip, and got our sick man over in safety. From there we proceeded until 11:20, dragging our man on the sled. Halted for dinner, half a pound of meat, and tea. At 1 went ahead again until 5:05. Actually under way, 8:30 to 9:15, 1 to 1:40, 3:35 to 4, 9:30 to 10:20, 1:50 to 2:10, 4:15 to 4:35, 10:30 to 10:20, 2:20 to 2:40, 4:45 to 5:05, 3 to 3:25. At 8 P. M. crawled into our blankets.

"Sunday, Oct. 2.—I think we all slept fairly well until midnight, but from that time forward it was so cold and uncomfortable that sleep was out of the question. At 4:30 we were all out and in front of the fire daylight just appearing. Erickson kept talking in his sleep all night, and effectually kept those awake who were not already awakened by the cold. Breakfast at 5 A. M.—half pound of meat, and tea. Bright, cloudless morning, light, northern airs; barometer 30.30 at 5:32; temperature at 6, 35°. At 7 went ahead, following the frozen water whenever we could find it, and at 9:20 I felt quite sure we had gone some distance on the main river. I think our gait was at least two miles an hour, and our time under way 2h. 40m. I calculate our forenoon work at least six miles.

"Two miles an hour distance make good ten to twelve miles, and where are we? I think it the beginning of the Lena River, at last. Sogaster [a village he had expected to have fallen in with] has been to us a myth. We saw two old huts at a distance, and this was all; but they were out of our road, and the day not half gone. Kept on the ice all the way, and therefore think we were over water; but the stream was so narrow and so crooked that it never could have been a navigable stream. My chart is simply useless. I must go on plodding to the southward, trusting in God to guide me to some settlement, for I have long since realized that we are powerless to help ourselves. A bright, calm, beautiful day brought sunshine to cheer us up. An icy road and one day's rations yet. Boats frozen, of course, and hauled up. No hut in sight,

and we halt on a bluff to spend a cold and comfortless night. Supper—half pound meat, and tea. Built a rousing fire. Built a log bed. Set a watch, two hours each, to keep fire going, and get supper. Then we stood by for a second cold and wretched night. There was so much wind we had to put up our tent halves for a screen, and sit shivering under half blankets.

“Monday, Oct. 3, 1881.—113th day. It was so fearfully cold and wretched that I served out alcohol to all hands, and on this we managed to live along until 5 A. M., when we ate our dinner, meat, and had more tea. Our morning meal now consists of 4-14 of a pound of pemmican each, and a half-starved dog. May God again incline unto our aid! How much farther we have to go before making a shelter or settlement, He only knows. Brisk winds, barometer 30.23 at 1:50 temperature. Ericksen seems failing. He is weak and powerless, and the moment he closes his eyes, talks, mostly in Danish, German, and English. No one can sleep, even though our other surroundings permitted. For some cause my watch stopped at 10:45 last night while one of the men on watch had it. I set it as near as I could by guessing, and we must run by that until I can do better. Sun rose yesterday morning at 6:40 by the watch when running all right. Total travel for two hours thirty-five minutes, say five miles.

“Our force means work. I put as above five miles. Some time and distance was lost by crossing the river upon seeing numerous fox traps. A man's track was also seen in the snow, bound south, and we followed it until it crossed the river to the west bank again. Here we were obliged to go back again in our tracks, for the river was open in places, and we could not follow the man's track direct. Another of the dozen shoals that infest the river swung us off to the eastward, too, and I hastened to get on the west bank again, reaching there at 10 minutes to 12 for dinner—our last four-fourteenths of a pound of pemmican.

“At forty minutes past 1 got under way again, and made a long spurt until twenty minutes past 2. While at the other side of the river Alexai said he saw a hut, and during our dinner camp he said he again saw a hut. When reached, however, after a hard struggle, it was

nothing but a mound of earth. Sick at heart I ordered a camp to be made in a hole in the bluff face, and soon before a roaring fire we were drying, and burning our clothes, while the cold wind ate into our backs. "And now for supper nothing remained but the dog. I ordered him killed and dressed by Iverson, and soon after a stew was made of such parts as could not be carried, of which everybody except the Doctor and myself eagerly partook. To us two it was a nauseating mess, and—but why go on with such a disagreeable subject. Warm we could not get, and getting dry seemed out of question. Every one seemed dazed and stupefied, and I feared some of us would perish during the night. How cold it was I don't know, as my last thermometer was broken by my many falls upon the ice, but I think it must have been below zero. A watch was set to keep the fire going, and we huddled around it, and thus our third night without sleep was passed. Ericksen's groans and rambling talk rang out on the night air, and such a dreary, wretched night I hope I shall never again see.

"Tuesday, Oct. 4—114th day. At the first approach of daylight we all began to move around, and the cook was set to work making tea. The Doctor now made the unpleasant discovery that Ericksen had got his gloves off during the night, and that now his hands were frozen. Men were at once set at work rubbing them, and by 6 A. M. had so far restored circulation as to risk moving the man. Each one has hastily swallowed a cup of tea, and got his load in readiness. Ericksen was quite unconscious, and we lashed him on the sled. At 10 A. M. Alexai went off to hunt, but returned at noon wet, having broken through the ice and fallen in the river. At 6 P. M. we roused up, and I considered it necessary to think of some food for my party. Half a pound of dog meat was fried for each person, and a cup of tea given, and that constituted our day's food, but we were so grateful that we were not exposed to the merciless southwest gale that tore around us, that we did not mind short rations." Ericksen died Oct. 6, at 8:45 A. M. The narrative of the intervening days consists of the same sickening account.

"Sunday, the 9th.—All hands at 4:30. Half an ounce of alcohol. Read divine service. Sent Ninderman and Noros ahead for relief."

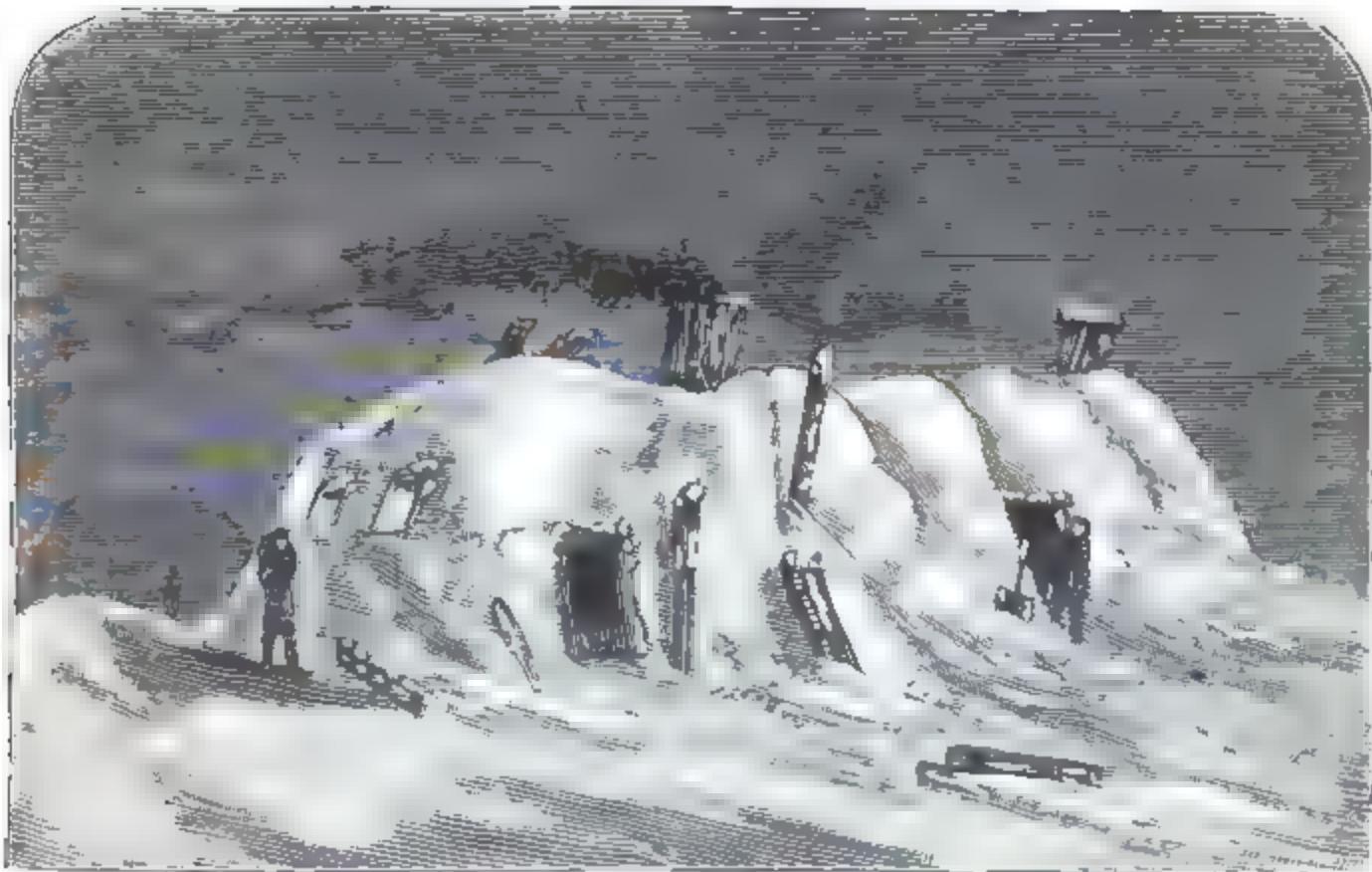
They started at 7. Noros thus records De Long's instructions: "If you find game, return to us; if you do not, go on to Kumak-suti." "All the men," says the same, "shook hands with us, and most of them had tears in their eyes. Collins was the last; he simply said: 'Noros, when you get to New York, remember me.' They seemed to have lost hope, but as we left, they gave us three cheers. We told them we would do all that we could do, and that was the last we saw of them. We started without a particle of food. I had a pair of sealskin trousers. We cut pieces from these and chewed them until we were found by the natives. We were so weak we could hardly stand. I believe that if we had had to endure our sufferings for two days longer we would have shot ourselves. The natives took us to their camp and gave us plenty to eat and drink. The result was, we were both quite sick for some time. We were taken to a village, and from there to Bulun. At Bulun we tried to get a telegram sent, but could not make them understand. We supposed that we were the only two men alive out of the whole expedition. Then we heard of a boat's crew landing at one of the mouths of the Lena. The boat proved to be Melville's, and as soon as they learned of our arrival at Bulun they joined us at that place, so there were thirteen of us alive."

HOW IT FARED WITH THE WHALE-BOAT'S PEOPLE.

Meanwhile, the whale-boat, under Melville and Danenhower, with much difficulty and through great dangers, had entered the eastern mouths of the Lena, landing also on the 16th,—in 108 hours from Semenovski, and three months from their first camp near the spot where the Jeannette went down. Here they found a deserted hut, and soon built a fire, and wearied as they were, prematurely huddled around its grateful glow before the circulation had been restored by a little healthful exercise. Danenhower alone had sufficient self-restraint to observe this precaution; and he was soon in much better condition than his comrades.

On Saturday, the 17th of September, Melville's party proceeded up the river in the whale-boat, making about thirty miles, when they encamped for the night on the bank. On Sunday, about 11 A. M., they

noticed two huts, and concluded to land, and devote the remainder of the day to rest. It was the only day of real repose they had enjoyed for a long time. The very next day they fell in with three natives, of the Toungous tribe, and their safety was assured, though there were yet many delays and annoying hindrances from men and nature before they could reach the confines of civilization. On the 20th they made an unsuccessful attempt to push up the river without a pilot, and encountering shoals, they returned to camp. Meanwhile, their Toungous friends had summoned a man of some prominence in the



EXTERIOR OF CONVICT-HUT IN SIBERIA.

tribe, Vasili Koolgiyork, or Basil Cut-ear, who now received them with great kindness, and volunteered to serve as pilot. On the 21st they again set out with Vasili and two of the other Toungouses in three viatkas or canoes, sounding the way ahead, and in three days reached the camp of one Spiridon. Here Vasili was replaced by one of Spiridon's men as pilot, and on the 26th reached the small village of which Nicolai Shagra was chief, where they also met a Russian exile named Yaphem, or Euphemius, Kopelloff. On the 27th they set forward again, with

these two as pilots, but were compelled by bad weather and new ice to return to the village. It was now declared by Shagra that their best course would be to wait fifteen days for the freezing of the river, and then perform the journey by sledges. In point of fact, the river was frozen the next day, and in a week the ice was fit for sledging in some places. Another Russian exile, named Dimitri, or Jeremiah Kusmah, now visited them, and took Danenhower to his hut. His wife, a Yakut woman, presented the visitor with some tobacco, a small bag of rye flour, some sugar, two bricks of tea, and some salt. Kusmah gave him a reindeer, weighing when dressed, ninety-five pounds, all of which were very acceptable additions to their limited stores. Waiting for the ice to grow strong, the trip to the south was delayed until the 16th of October, when Kusmah and Shagra started for Bulun, to acquaint the Russian authorities with their position and condition. A few days later, the enterprising Danenhower made an effort, with the help of the friendly Toungouses and Kusmah, to reach Barkin, at the extreme northeast point of the Lena Delta, which he was assured was only about thirty-five miles away. He soon found, as the natives had asserted, that the ice was not strong enough, and returned, disappointed, after four days' absence. The envoys to Bulun did not get back until the 29th, bringing bread and supplies, and a kind letter from the commander of Bulun; also a very startling piece of intelligence to the Americans. At Bulkur, on their return, they fell in with two of De Long's party, Ninderman and Noros, who sent a letter to Melville acquainting him with the condition in which they had left their comrades. Taking Vasili as guide, Melville set out the next day for Bulun, and passed the Commander Baishoff on his way out, by another route, each reaching his destination on the 1st of November.

De Long's diary continues: "Thursday, 13.—Willow tea. No news from Ninderman. Went down in a hole in the bank, and into camp. Sent back for Lee. He had laid down and was waiting to die. All united in saying the Lord's Prayer, and cried. After supper a strong gale of wind; horrible night. Friday.—Breakfast, willow tea; dinner, one-half teaspoonful of sweet oil, and willow tea. Alexai shot one ptarmigan. Had soup. Wind moderating. Saturday,

Oct. 15.—Breakfast, willow tea, and two old boots. Conclude to move at sunrise. Alexai breaks down; also Lee. Come to empty grain raft; halt and camp. Smoke at twilight to southward. Sunday, Oct. 16.—Alexai broke down. Divine service. Monday—Alexai dying; Doctor baptized him; read prayers for the sick. Mr. Collins' birthday—forty years old. About sunset Alexai died of exhaustion from starvation. Covered in the ensign, and laid him in the crib. Tuesday—Calm and mild; snow falling; buried Alexai in the afternoon; laid him on the ice, and covered him with slabs of ice. Wednesday—Cutting up tent to make foot gear. Doctor went ahead to find new camp. Shifted by dark, Thursday—Bright and sunny, but very cold. Lee and Kaack done up. Friday—Kaack was found dead about midnight between the Doctor and myself. Lee died about noon. Read prayers for the sick when we found he was going. Saturday—Too weak to carry bodies of Lee and Kaack out on the ice. The Doctor, Collins, and myself carried them around the corner out of sight. Then my eyes closed up. Sunday—Everybody pretty weak; slept or rested to-day, and then managed to get enough wood in by dark. Read part of the divine service. Suffering in our feet; no foot gear. Monday—A hard night. Tuesday, Wednesday, Thursday, 27th, the one hundred and thirty-seventh day: Iverson broken down. Friday—Iverson died during the early morning. Saturday, 29th—Dressler died during the night. Sunday, Oct. 30.—One hundred and fortieth day. Boyd and Görtz died during the night. Mr. Collins dying."

This is the end of De Long's diary. De Long, Surgeon Ambler, and Ah Sam, the cook, must have died soon after the last note was written.



CHAPTER LXXXIX.

THE LOSS OF THE JEANNETTE PROCLAIMED — MELVILLE STARTS IN SEARCH OF DE LONG—HIS PLAN—MELVILLE FINDS THE BODIES OF DE LONG AND PARTY—GILDER'S STORY — THEIR COMMON GRAVE—NO TRACES OF CHIPP—THE SURVIVORS RETURN HOME — CASKETS FORWARDED — FORMAL EXAMINATION OF DANEN-HOWER AND MELVILLE—SCHEMES TO REACH THE POLE—POLAR SCIENTIFIC CONGRESS.

And now, on the 19th of December, the news of the disaster was flashed over the civilized world, the first telegram from St. Petersburg being: "The Governor of Eastern Siberia announces that the American polar ship, Jeannette, has been found, and her crew succored." Telegrams, letters and interviews followed, and the main facts came to the knowledge of their countrymen and the government, which took speedy measures to do everything possible for the comfort of the survivors, and gather all ascertainable facts relating to the lost, being ably seconded by Mr. Bennett and the Russian government.

The Governor-General of Eastern Siberia, who happened to be in St. Petersburg, when he received information of the arrival of the shipwrecked crew of the Jeannette in the region under his command, immediately proceeded to Gatschina and saw the Emperor, who personally ordered that all supplies that were necessary for food, clothing, money and transportation, should be placed at their disposal.

About Dec. 29 Melville arrived at Iakoutsk, from his first trip in search of De Long. He had found a larger working force necessary, and also the official indorsement of the Russian authorities at that point. He had been gone twenty-three days from Bulun, and had traced De Long as far as a summer hunting station called Sisteransk, on the west bank of the Lena, and that the party must be between that point



GROUP OF SURVIVORS FROM THE JEANNETTE EXPEDITION.

and Bulkur, neither of which places is marked on the maps. There was no hope that they were still alive, as the region is devoid of game as well as of inhabitants. The commandant at Bulun was to continue the search with such resources as he could command, while Melville went forward to headquarters to secure the co-operation of the higher authorities at Iakoutsk. Two days later the rest of the men arrived from Bulun; and on New Year's Day, 1882, the thirteen survivors of the "American Polar Expedition" of 1879, were at Iakoutsk, the local capital of Northeastern Siberia, in latitude 62° , and longitude $129^{\circ} 44'$ east, with a resident population—half Russian, half Yakouts and others—of about 5,000. The most of the company were in good physical condition; but Danenhower's left eye was completely disabled, and the right one endangered through sympathy. Cole was mentally affected—a mild type of insanity, and Leach was suffering from frozen feet. The trip from Bulun had taken thirty-six days.

On the 8th of January, Danenhower and nine others proceeded southwest to Irkoutsk, the capital of Eastern Siberia, latitude $52^{\circ} 17' 2''$, and longitude $104^{\circ} 16' 21''$ east, with a population of about 33,000—a trip of over 1600 miles. On their arrival they were received in the most courteous and hospitable manner by citizens and officials, being invited to social gatherings and popular festivities, at all of which they behaved with great care, and won golden opinions from their hosts. They were all lodged together at the house of Mr. Strelovsky, the private secretary of Gen. Pedachenko, the vice-governor-general of Eastern Siberia.

On the 27th of January, 1882, Melville started again for the north in search of what he felt would be the remains and relics of De Long and his party. He was accompanied by Ninderman and Bartlett of the ship's company, and organized three searching parties. The first was headed by Ninderman and the Russian Lobokoff; the second by Bartlett and Sergeant Koliukin; and the third by himself and Grönbeck—each with a dog-sledge and Yakout driver.

The search was to be carried on by the three parties as follows:—"I propose," he says, "to establish a depot at Bulun for all supplies—center of

operations at 'Two Crosses', near Mount Yai—one party to go as far north as Sisteransk and work back to Two Crosses; one party to work south half-way to Bulkur; one party to work from Bulkur north to Two Crosses. These three parties should be able to search the whole of the country between Sisteransk and Bulkur in twenty days after leaving the depot. This being completed, the depot will be moved to Cathcontee, between Sisteransk and Ouvina; one party to follow the northern and western branches of the Lena as far as the river Olenek; second party to follow the northwestern branch of the Lena and work up toward Upper Bulun; the third party to work from Upper Bulun on the northwest coast southwest, to meet the second party. This will complete the search for Lieutenants De Long and Chipp as far west as the Inner Olenek."

All supplies were to have been at Bulun on Feb. 15; and the searchers were to be in the wilderness by March 1. "I can search all the coast," says Melville, "between March 1 and June, when the floods set in so badly we cannot work, and everything that is on moderately low ground will be swept away. I kept all useful men with me and have hired three others from Yakutsk, and will get additional assistance from the Cossack commandant at Bulun, and if the people are on the ground they will be found."

March 12, 1882, Mr. Jackson—a correspondent of the Herald, who had been sent forward by Mr. Bennett on receipt of first tidings of the loss of the Jeannette—started north from Irkoutsk.

Mr. Gilder, who it will be remembered brought the news of the loss of the Rodgers to Verchoyansk, and then turned his attention to the search for the missing members of the Jeannette Expedition, forwarded from the Lena Delta, April 12, the following account of the finding of the bodies of De Long and his ten companions, and their burial: "Melville found the bodies of De Long's party March 23d. They were in two places, five hundred and one thousand yards from the wreck of the scow. Melville's searching party first started from the supply depot to follow Ninderman's route from Usterday to Malvey, and afterward from Malvey back toward Usterday. They stopped at the place which Nind-



MELVILLE FINDING DR LONG AND PARTY.

HARVEY

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erman and Noros passed the first day after they left, De Long feeling sure that the others had not got much further. There they found the wreck, and following along the bank, they came upon a rifle-barrel hung upon four sticks. They set the natives digging on each side of the sticks, and they soon came upon the two bodies under eight feet of snow.

“While these men were digging toward the east, Melville went on along the bank, twenty feet above the river, to find a place to take bearings. He then saw a camp-kettle and the remains of a fire about a thousand yards from the tent, and, approaching, nearly stumbled upon De Long’s hand, sticking out of the snow, about thirty feet from the edge of the bank. Here under about a foot of snow, they found the bodies of De Long and Ambler, about three feet apart, and Ah Sam lying at their feet—all partially covered by pieces of tent, and a few pieces of blanket. All the others except Alexai they found at the place where the tent was pitched. Lee and Kaach were close by in a cleft in the bank toward the west. Two boxes of records, with the medicine chest and a flag on a staff, were beside the tent. None of the dead had boots. Their feet were covered with rags tied on. In the pockets of all were pieces of burnt skin and of clothing of which they had eaten. The hands of all were more or less burned, and it looked as if when dying they had crawled into the fire. Boyd was lying over the fire, and his clothing burned through to the skin, which was not burned. Collins’ face was covered with a cloak.

All the bodies were carried to the top of a hill three hundred feet high, about forty versts to the southwest from where they were found, and there interred in a mausoleum constructed of wood from the scow, built in the form of a pyramid, twenty-two feet long and seven high, surmounted by a cross twenty-two feet high and a foot square, hewn out of driftwood, and conspicuous at a distance of twenty versts. The mausoleum was covered with stones, and is to be sodded in the spring. The cross is inscribed with the record and name of the dead, cut in by the search party.”

Toward the end of March, Danenhower, Newcomb, Cole and Long Sing set out from Irkoutsk on the long trip for home. On the 29th

they were at Krasuoyarsk, making easy marches to the west, and on the 1st of May arrived at St. Petersburg. About a week later they left Cronstadt for Hull, England, and on the 28th of May, 1882, they were in New York—the first arrivals from the Jeannette—where they were received with much enthusiasm. Similar receptions followed at Philadelphia and Washington.

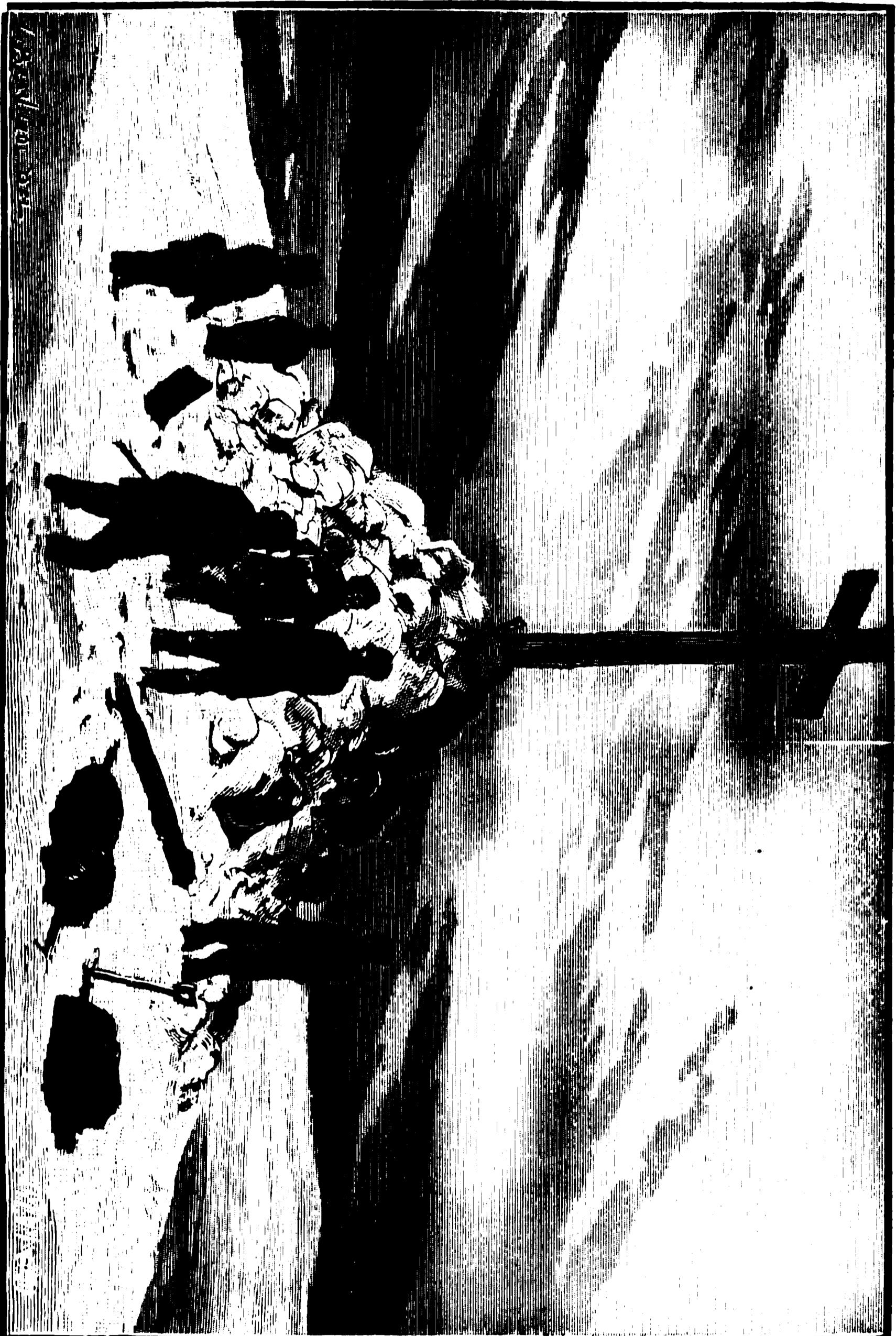
Melville wrote from Iakoutsk on the 27th of March, that he would leave for Bulun on the 29th. He had concluded that the steamer Lena—which was to be turned over to him as the representative of Mr.



THE JEANNETTE SEARCH EXPEDITION.

Bennett, by the representative of Mr. Sibiriakoff—would be useless for his purpose. He preferred to engage a steam launch to come down to Bulun for news, or to take him back in June. On the 2d of April he wrote from Karaga Terinsky, seventy miles north of Iakoutsk, that he met the ispravnik who had accompanied Mr. Gilder to Verchoyausk, and that the latter had gone in search of the survivors of the Jeannette.

On the 8th of April Secretary Hunt cabled Lieut. Harber authority to draw for the funds necessary to hire the steamer Lena for a season; but the contract was not completed, and another was purchased, which



GRAVE OF DE LONG AND PARTY.

was to be found on the Vitim River, a confluent of the Lena. Subsequent dispatches told of the severe horseback journey of Harber, Scheutze, and their party over the mountains from Irkoutsk to Vitimsk, the post-road along the Lena being impassable through water and ice. They arrived on the 28th of April, and it was expected the Lena would be free of ice on the 1st of June, and then would commence the voyage north in search of the remains and relics of Chipp's party. Meanwhile, the party were busy building boats and dories for use with the vessel in exploring the mouths of the river. With the consent of the Secretary of the Navy, the six well men of the Jeannette, still remaining at Irkoutsk, volunteered to serve under Harber and Scheutze in the search for their missing comrades.

On September 2d, eleven hermetically sealed and otherwise specially constructed caskets were sent out from New York, to be used in bringing home for permanent burial, the bodies of De Long and his companions.

On the 13th of September, Engineer Melville, with Ninderman and Noros, and Lieut. Berry of the Rodgers, arrived in New York, where they received a cordial greeting, followed by similar demonstrations at Philadelphia and Washington.

In the months of October and November a formal inquiry into the loss of the Jeannette, and many of her officers and men, was made by a special committee of Congress, appointed in advance for that purpose. Lieut. Danenhower and Engineer Melville were orally examined with great minuteness of detail, and each submitted a formal and full report. Nothing different from the foregoing narrative was developed. There has been no serious doubt at any time in the minds of reflecting men that they all did their duty to the best of their knowledge and ability. Nor is there any evidence of serious misunderstanding between the officers, as has been sometimes alleged. Mistakes and miscalculations were inevitable, and they began from the first, and did not end till the close of the ill-planned, ill-fated expedition. The careful reader of this volume of voyages will have no difficulty in detecting many; and it would serve no good purpose to more definitely point them out.

POLAR SCIENTIFIC COLONIES.

The chain of international scientific stations around the Polar Basin, suggested a few years ago, was completed in the summer of 1882. The observations were to commence on the 1st of August, 1882, and to close on the 1st of September, 1883. They were to be taken hourly each day; and were to comprise meteorology, astronomy, terrestrial magnetism and auroral displays, together with some optical investigations. The instrumental equipments of the several corps of observation, as well as the



COMMANDER CHEYNE'S PLAN FOR REACHING THE POLE.

abilities of the practical scientists comprising them, insure as thorough work as will be found practicable in those high latitudes. They are distributed as follows:

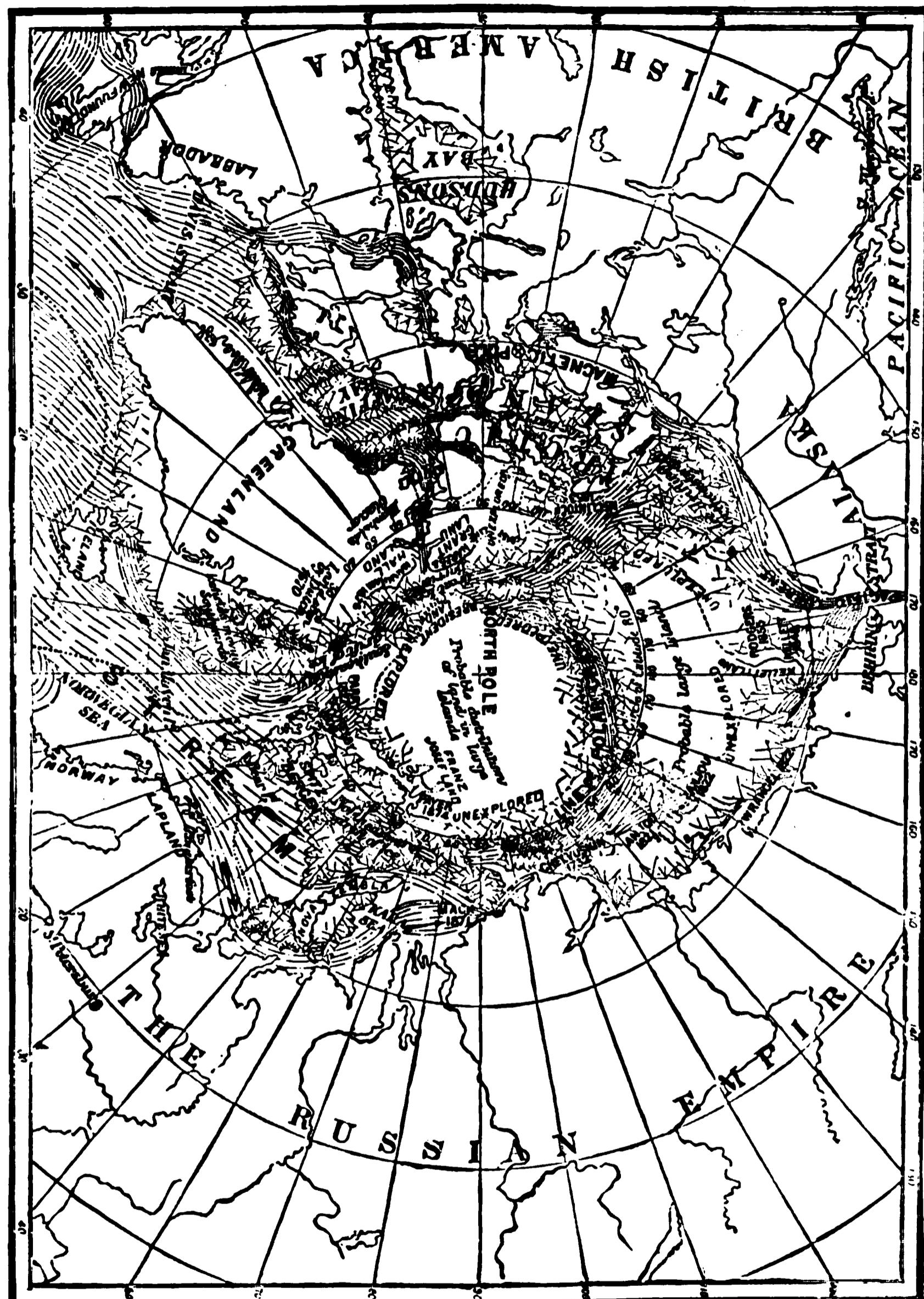
The United States has two, both established in August, 1881, to afford ample time for preliminary observations and partial acclimation before commencing the preconcerted work nearly a year later. One is at Lady Franklin Bay, under Lieut. A. W. Greeley, fully provisioned for two years, and consists of four officers, besides the commander, and nineteen men of the United States Signal Service Corps, and one newspaper cor-

respondent. The steam-whaler Neptune attempted to carry forward a relief party and additional stores, leaving New York July 8, 1882, but was stopped by pack-ice in latitude $79^{\circ} 20'$, or about 160 miles short of her destination. She, however, established supply depots for the use of the colony on their return. The other American colony is at Point Barrow, under Lieut. Ray, with a similar corps of assistants, and similarly supplied. England and Canada have one colony at Fort Simpson, intermediate between the two of the United States; and Denmark has one on the west coast of Greenland, the four covering about 100 degrees of longitude, and the American division of this circumpolar cordon of scientific stations. Denmark has also a Polar expedition out in the Dympna, under Lieut. Hovgaard, a volunteer subordinate of Nordenskiöld, in the Vega, in 1878-'9.

Austria-Hungary has a station at Jan Mayer Island; France one at Spitzbergen. Sweden and Norway also one at Spitzbergen, and one at Altengaard, in Finnmark; and Russia, one at Nova Zembla. These five, together with Hovgaard's movable station, in the region of Franz-Josef Land, cover eighty degrees of longitude, and constitute the European division.

Russia has her chief station on the Lena Delta, under Nicholas Jurgens, an officer of the corps of pilots, with Doctor Bangs, Mathematician and Engineer, nine soldiers, and two Cronstadt marines, besides such additional help as they may need, to be supplied by the government of Eastern Siberia. The Netherlands have one at Port Dickson, at the mouth of the Yenisei; and a movable one, the steamer William Barentz, under Lieut. Hofman, who is under orders to make a prolonged cruise for purposes of meteorological and other scientific observations, in the Arctic Ocean. Germany has one station in the North Pacific. These four constitute the Asiatic division, and cover very inadequately the remaining 180 degrees, or as much as the other ten. Germany has a second station on the Gulf of Georgia, but this of course is in no proper sense a Polar station.

MAP OF MOLAK REGIONS.





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